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# Southern Exceptionalism and Its Impact on Environmental Attitude

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SOUTHERN EXCEPTIONALISM AND ITS IMPACT ON ENVIRONMENTAL  
ATTITUDE

SOUTHERN EXCEPTIONALISM AND ITS IMPACT ON ENVIRONMENTAL  
ATTITUDE

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts in Political Science

By

Summer Woehr  
Campbell University  
Bachelor of Science in Government, 2006

May 2011  
University of Arkansas

## **ABSTRACT**

In recent years, the environment has become a top concern for many people. Scientific studies have shown evidence of immediate and future threats on our environment. Despite the vast amount of evidence, many people (especially in the South) do not believe there is a human cause for global warming, a fundamental part of the environmental movement. Literature suggests Southern exceptionalism may play a part in shaping attitudes toward environmental policies in the South. Further, a recent look at V.O. Key Jr.'s 1949 *Southern Politics in State and Nation* suggests that religion has since been overlooked as an explanation for Southern exceptionalism (Shafer & Johnston, 2011). This study aims to explain these differences found between Southern states and their northern counterparts with special attention to religion. Numerous variables (religion, gender, race, education, age, and trust in government) are considered doing a multivariate analysis. This study finds that religion and ideology are key factors in predicting individual attitudes toward the environment among Southern residents.

This thesis is approved for  
Recommendation to the  
Graduate Council

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## **CHAPTER 1: INTRODUCTION: THE ENVIRONMENTAL MOVEMENT**

Recent studies in political science have shown a need for further research linking Southern exceptionalism and religion. After analyzing V.O. Key Jr.'s work in *The End of Southern Exceptionalism* Shafer and Johnston concluded the South is no longer exceptional for the reasons discussed by V.O. Key Jr. (Shafer & Johnston, 2006). However, in a new look at their award winning book Shafer and Johnston conclude V.O. Key Jr. and his acolytes have missed an important part of Southern exceptionalism, religion (Shafer & Johnston, 2011). This paper will examine the affect of Southern exceptionalism on environmental attitude with an emphasis on religion. The objective of this paper is to determine how Southern exceptionalism affects the views of global warming. A brief history of the environmental movement is necessary to understand the importance of this topic.

Earth Day has become a way to celebrate our planet and promote ways to care for the Earth. Although concern for our planet is nothing new, the first official Earth Day did not take place until 1970. Environmental concern has grown since the first nationally recognized Earth Day on April 22, 1970 (Earth Day, 2010). Originally, the environmental movement concentrated on conservation and wildlife preservation (Earth Day, 2010). In recent years however, environmental concern and activism has penetrated every part of American life. Consumers can find “green” products or businesses claiming to be “green” everywhere.<sup>1</sup> Movies like Disney’s “Wall-E” mirror environmental activism and the horrors that lay ahead if action is not taken immediately to protect our planet. Television networks use public service announcements during peak times to

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<sup>1</sup> There are no regulations to what is “green” but it is presumed to mean “Earth friendly.”

explain the benefits of changing to energy efficient light bulbs and conserving water and electricity. Children learn ways to recycle and the importance of conserving resources very early in life, often beginning in preschool. The importance of recycling and conservation is then reinforced through popular cartoons. Forty years ago, no one could have imagined the impact the environmental movement would have on our daily lives, yet many Americans still question the validity of global warming research.

April 22 was declared Earth Day in 1970 after Wisconsin Senator Gaylord Nelson initiated the bill (On Earth Editors, 2010). However, many environmental activists had celebrated the first Earth Day a year earlier as Senator Nelson unveiled his plans for a day to celebrate the Earth (On Earth Editors, 2010). Conservation and wildlife preservation were the top priorities for environmentalists in 1970. Today issues have expanded to include manufacturing, air pollution, water quality, electricity, and the controversial issue of global warming.

Marketing resources have catered to “green” consumers. Companies now advertise their Earth friendly production to attract new customers and keep others happy. Consumers like to know businesses are being responsible with waste disposal and resource management. Other corporations boast Earth friendly contents in their packaging or the product itself. These products are usually produced without pesticides and manufactured under the same Earth friendly conditions as other “green” products. Forbes magazine proclaimed that, “green is the new black” for many major companies (Wingfield, 2007). Meaning the green movement has become so big that it is now as universal as the color black, and indicating the green movement’s popularity.

Environmentalists also promote the idea of sustainability. Sustainability focuses on the principal of a self-containing. Businesses like Wal-Mart and General Electric have launched huge campaigns to become sustainable. Even schools are making an effort to cut back on their resource usage and become sustainable, since sustainability often results in less energy consumption and less energy expenditures. While some people and organizations use sustainability as a way to curb costs, businesses are more public about their efforts, and often advertise their sustainability efforts to appeal to Earth-conscious consumers. Wal-Mart structures its buildings to utilize solar power and sunlight during daytime hours. They have also placed windmills in several parking lots to power the lights in the parking lot. Visible displays of Earth friendly practices help businesses build their image in the public.

Despite the media attention on the environment, many are still unwilling to believe reports of global warming. In 2006, the Southern Baptist Convention issued a statement saying that global warming does exist, but is not caused by humans nor can limits on fossil fuels change the effect of global warming (Alliance, 2006). Global warming again came under attack on November 17, 2009 when over 1,000 emails from the Climate Research Unit, CRU, at a British university were leaked to the public (Walsh, 2009). Time Magazine, along with other media outlets, mostly discount the contents of these emails stating even if the CRU did doctor past temperatures and plan to 'blackmail' leading scholarly journals, there are other research units reporting the same climate changes and the journal is unlikely to have succumbed to the threats (Walsh, 2009). Many people have discounted the emails as a publicity stunt by those opposing environmental policies. Others have used the emails to support a belief they have long

held that global warming is a hoax. The emails go back 13 years and in one email, a CRU scientist discusses how he made changes to previous temperature records (Walsh, 2009). Other emails suggest the CRU should encourage scientists to refuse submitting papers to a particular journal unless the journal stops publishing opposition to global warming (Walsh, 2009). Both sides of the global warming argument have explanations for these emails, but the fact is, for skeptics, this fuels the belief that scientists are lying about global warming. Although many religious leaders have changed their position on global warming, previous beliefs on an individual level are slower to change.

The remaining chapters seek to explain why some people believe global warming is a serious problem that needs immediate attention and others believe it is nothing more than a hoax. Chapter 2 describes the environmental movement in the South. Special attention is paid to religion in the South, as religion is a large part of Southern culture. Chapter 3 continues with a literature review of the relevant predictors of environmental attitudes. Many demographic characteristics have been useful in predicting environmental attitudes, but region has not. Chapter 4 outlines the hypotheses and methodology used to determine environmental support in the South. Chapter 5 describes the data used in the research. Secondary data collected by the PEW research center is used in chapters 5, 6, and 7 to determine the relationship between environmental attitude and individual characteristics. Chapter 6 includes a bi-variate analysis for the significant variables found in the previous chapters. The two dependent variables are used to determine belief in global warming and the level of support for global warming across various independent variables. Chapter 7 shows the importance of religion and other variables when combined in a logistic regression. Chapter 8 concludes the paper with a

detailed explanation of the findings and interpretation of the findings in the previous sections. Throughout the paper, attention is paid to the difference in Southern culture and the way it affects the perception of global warming.

## **CHAPTER 2: THE ENVIRONMENTAL MOVEMENT AND THE SOUTH**

Since the first Earth Day in 1970, the environment has become an increasingly major concern in the United States. In all parts of the world people are wondering what they can do to ensure a healthy environment for themselves and future generations (Gifford, 2007). Many countries have signed international agreements pledging to reduce waste. However, the United States, despite its initiating talks around the world on climate change and environmental issues, has not received Congressional approval for many international environmental policies (Bureau of Public Affairs, 2010). One such agreement that received a great deal of attention was the United Nations Kyoto protocol. Then President Bush refused to sign the Kyoto protocol in 2001 and more recently current President Obama has been scrutinized for failing to follow-through on his campaign promise of reviving the Kyoto protocol (Kluger, et al., 2001; United Nations, Rosenthal, 2009). The United States is considered the leader in many world affairs, but not when it comes to the environment. Most Americans desire some protection of the environment, yet there is still enough opposition to prevent major legislation. Congress is unlikely to approve bills or treaties without public support. One reason for the discrepancy in desire to protect the environment and support for legislation could be cultural divides in the United States; unlike other countries around the world, the United States is made of many races, ethnicities, religions, and often-conflicting ideas.

One important source of attitude variation in the United States is geographic region and 'Southern region' more specifically. Defined in this study as the eleven states of the old Confederacy, the South has been a unique region in the country. The

importance of regional difference in the South is evidenced by examining several dimensions. First, the importance of distinguishing the South is apparent by looking at any map of presidential races. Once the backbone of the Democratic Party, the South underwent extreme political change throughout the 1960s and through the 1980s to become the Republican's most trusted voting bloc (Black & Black, 1987). In fact, since John F. Kennedy in 1960, Barack Obama is the first Democrat to win the Presidency that was not from the South.

In addition to presidential elections, the uniqueness of the American South is clearly shown in the different norms, values, and traditions than their northern counterparts. Black and Black found "Southerners' beliefs and attitudes are not identical with those of non-Southerners" (Black & Black, 1987). A more recent study in 1998 found that religion was a major component in the South, citing the fact that the civil rights movement began in many Southern churches (Bullock & Rozell, 1998). The environmental attitude is different in the South, but what makes it different has yet to be fully determined. Recent studies on environmental attitude have given insight into what may cause this Southern exceptionalism. A new publication suggests previous research on the South has left out a significant variable, religion (Shafer & Johnston, 2011). Shafer and Johnston review their own work and that of others and conclude more research needs to be conducted with attention given to religion in the South (Shafer & Johnston, 2011). This paper aims to bridge that gap.

Southerners are greatly affected by the environmental movement. Southerners seem to have no problem protecting their environment from waste and ensuring wildlife

is able to flourish, if they believe the problem is real and can see it. Arkansas is nicknamed the Natural State for its commitment to wildlife parks and preservation. The idea of not using pesticides on crops that provide the sole income for many Southern farmers because it is “causing” global warming is more controversial. After all, farmers have been using pesticides for much longer than people have been discussing global warming. The thought that something that has been used for generations could be causing the Earth’s temperature to rise is unfathomable for many Southerners. Many Southerners do not see a direct relationship between human activity and global warming. However, the Southern part of the United States has the largest ‘dead zone’ in the world (Kromm, 2010). The ‘dead zone’ refers to the Gulf Coast area that is “so depleted of oxygen that shrimp, crabs, and other marine animals could no longer live” (Kromm, 2010). This affects many anglers because they must travel further into the ocean to fish. The recent BP oil spill has received a lot of attention, but may only be amplifying a problem that already exists. Some are reporting the recent oil spill will do just that by increasing the already 7,000 square-mile ‘dead zone’ in the Gulf of Mexico (Viegas, 2010). The map below shows the area affected by the ‘dead zone.’



Figure 1: Hurricane Katrina and Southern States



Map courtesy of the National Oceanic Atmospheric Administration and indyweek.com (Kromm, 2010). The lighter areas around the coast indicate the 'dead zone.'

The differences in Southerners could be described over weeks, days, or a few paragraphs. The truth is that Southerners are distinct. Perhaps Southerners are not as distinct as they once were, but there are still many distinctions in Southern attitude and culture that need to be explored to understand Southern exceptionalism.

### **CHAPTER 3: PREDICTORS OF ENVIRONMENTAL ATTITUDES**

In addition to regional differences, this investigation will also examine other factors that have been related to environmental attitudes in the scholarly literature. By considering the opposition, politicians can make better policies. Gauging environmental attitude has received the attention of scholars across many fields. However a great deal of the research conducted on environmental attitudes is the product of market research, conducted to determine the most effective way to compel consumers to buy a product. The research discussed below includes many factors that have been proven predictors of environmental attitude and some that have not been proven factors, but are believed to be a factor among the American South.

#### **Age**

Some demographic variables have shown contradictory evidence, while others have held true over time. Two demographic variables that remain steady across culture and time are age and political ideology. Younger people are more concerned with environmental issues than older people are (Xiao & Dunlap, 2007; Jones & Dunlap, 1992). Regardless of the question wording or the type of question, age is still a strong predictor of environmental concern (Klineberg, McKeever, & Rothenbach, 1998). Younger generations have grown up with the idea of environmentalism, while older generations may not have been introduced to the idea until adulthood. D'Souza, Taghian, Lamb, and Peretiatko found that younger people were able to understand environmental labels more than older individuals were (D'Souza, Taghian, Lamb, & Peretiatko, 2007). These labels can be found on food or other consumer products and show the contents or

lack of certain contents. Younger people have been immersed in the green movement. They understand it better because it is familiar to them. Gifford's research showed that there has been a movement toward sustainability over the last forty years (Gifford, 2007). Recall the first official Earth Day was in 1970. For young people, they have been exposed to environmental issues their entire life, it is no big surprise that younger people have a better understanding of environmental issues and are more environmentally concerned.

### **Political Ideology**

Political ideology is also effective at predicting environmental concern and environmental actions. In a 2001 study Dunlap, Xiao, and McCright found that only economic ideology was a good predictor of a participant's environmental concern (Dunlap, Xiao, & McCright, 2001). Those with a more conservative economic ideology are less concerned with environmental policies that could take years to produce visible results. Politically liberal respondents were more environmentally concerned than conservative respondents were (Dunlap, Xiao, & McCright, 2001). Respondents in the study were asked several questions to gauge how they relate to the environmental movement and how they interact with the environment (Dunlap, Xiao, & McCright, 2001). This study confirmed previous findings that political ideology is a good predictor of environmental attitude. Klineberg, McKeever, and Rothenbach found that political ideology was the most important predictor when the environmental questions dealt with environmental protection and increasing government intervention (Klineberg, McKeever, & Rothenbach, 1998). If government intervention is a factor, political ideology becomes

a bigger factor than if the question simply asks something like, “is recycling a good or bad thing?” Political ideology is an important factor to predicting public opinion in the United States because people align with others whose ideology is similar to their own.

### **Residence**

Other demographic variables have had mixed results. In 1992, Jones and Dunlap found that current residence is only slightly significant (Jones & Dunlap, 1992). In a study of various countries, those in the United States were most concerned with environmental issues when they were personally beneficial (Schultz, 2002). In other words, people were most concerned when the problem was one that directly affected them. This would indicate residence is a factor, at least when comparing the environmental concern among various countries. Being directly affected by the melting of polar ice caps would make a person more concerned about global warming. If a person lives in California and can see the shoreline rising after warnings that global warming would cause this it is easier for them to make a connection. Someone in Arkansas however would have different concerns. A person in Arkansas would not be able to see the increasing shoreline, so it is easier to dismiss the reports of polar ice caps melting and discount global warming.

When looking at urban and rural areas, Jones and Dunlap found that people who lived in urban areas are more likely to have concern for the environment (Jones & Dunlap, 1992). One explanation might be that in urban areas pollution and environmental problems are more visible than in sparsely populated rural areas. Schultz pointed out that sensory changes within the environment could take a long period before

being noticed (Schultz, 2002). In urban areas, these sensory changes may appear more rapid because of the way the population is condensed. Another explanation may simply be the cultural differences that exist between urban and rural areas. Rural areas are filled with people who choose not to live in urban areas for specific reasons. The rural mentality is much different from urban mentality. Inglehart's research shows that "post material" values do have an effect on an individual's environmental views; however, at the aggregate level these differences were lost (Inglehart, 1995).

### **Education**

Researchers have found formal education to be predictive on a range of beliefs. Dawes "limited process theory" helps to explain why people with lower education have lower environmental concern (Gifford, 2007). Dawes would argue that people with lower education cannot understand environmental issues as well and therefore are not as concerned about their effects. However, other studies have shown people can be supportive of environmental issues even if they have lower education (Uyeki & Holland, 2000). Therefore, it is still unknown whether education is a predictive factor in environmental concern.

### **Gender**

Research on gender differences in environmental concern has included national surveys and foreign surveys. In a 2007 study, Egyptian women were found to be less aware and less likely to purchase green products (Mostafa, 2007). The author acknowledges this is a contradiction to studies conducted in Western society, but does not

give any further explanation. Other evidence supports this, even within the United States. One study in 2007 found that men in the United States were more concerned with global warming and climate change than women were (Kellstedt, Zahran, & Vedlitz, 2008). To the contrary, earlier research by Jones and Dunlap found gender to be insignificant when predicting environmental concern (Jones & Dunlap, 1992).

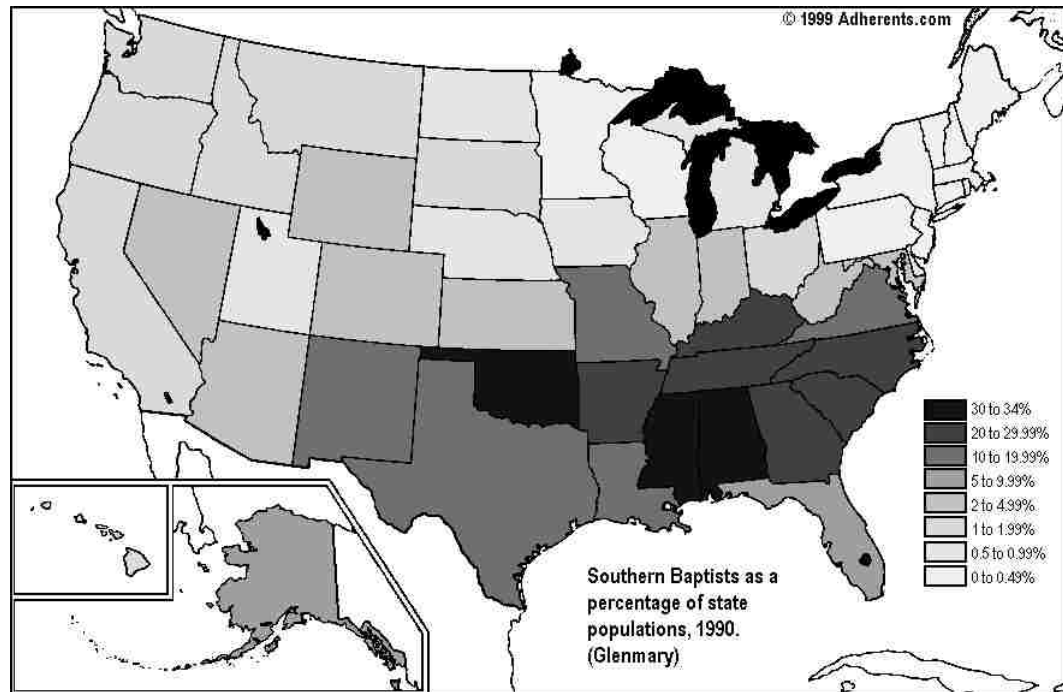
Other research seeks to explain why a possible discrepancy occurs, why sometimes gender shows differences and other times it does not. In 2001, Hayes thought she could explain the gender differences with wording (Hayes, 2001). Hayes believed that men would have superior scientific knowledge, resulting from their job experience and cultural stereotypes, and women would be more protective of the environment (Hayes, 2001). However, she did not find any gender differences in concern for the environment (Hayes, 2001). Hayes does not discount her hypothesis, but blames question wording for the lack of gender differences (Hayes, 2001). The effect of gender on environmental concern remains inconclusive based on the contradictions in the literature.

## **Religion**

Science and religion often come in conflict and that is no different with global warming and environmental issues. One researcher found that religious belief was the main predictor of those who believe in evolution (Mazur, 2004). Some religions believe science and evolution specifically attempt to discredit religion. People with strong religious beliefs also have a different set of values, which has been shown to influence environmental concern (Inglehart, 1995). Personal values are important for many people

and if they conflict with scientific findings, it can make acceptance of those findings difficult. Mazur found that the type of religion was more important than education level and age (Mazur, 2004). Some religions advocate caring for the Earth while others focus on other ideals. The Southern Baptist convention amended an earlier statement declaring global warming did not exist in 2006 saying now that global warming does exist, but is not man-made (Alliance, 2006). The Southern Baptist convention meets each year to discuss issues of importance to its more than 16 million members across the United States (Southern Baptist Convention, 1999-2011). This makes the Southern Baptist Convention the second largest religious group in the United States, second to Catholics (Southern Baptist Statistics Page, 2005). A 1990 survey showed over half of those within the Southern Baptist Convention lived in only five Southern states, Texas, North Carolina, Alabama, Tennessee, and Georgia (Southern Baptist Statistics Page, 2005). A map below shows the member distribution for the Southern Baptist Convention in the United States in 1990.

Figure 2: Distribution of Southern Baptists



(Southern Baptist Statistics Page, 2005)

Changes over the last twenty years have left the Southern Baptist Convention searching for ways to increase their membership, but despite their lack of growth, they remain one of the largest voices for evangelical Christians in the South (Stetzer, 2010). Respondents who identified themselves as evangelical have less concern for the environmental problems (Guth & Green, 1995). Evangelicals are less likely to compromise their religious beliefs to include scientific research; they are more likely to discount the scientific research if it conflicts with their religious beliefs.

Mazur also found that the more frequently people attended church services, the less likely they were to believe that humans evolved from an earlier species (Mazur, 2004). Most church attendance in the United States is Christian, which teaches God created man; many people do not believe this can be possible with evolution. Rather than



finding common ground or compromising a religious belief, many point to perceived flaws in the science of evolution. If religious respondents believe that any scientific research contrary to their beliefs is false, it could explain why those same people do not believe in global warming and why they are not as environmentally concerned as others. Not all religions discount scientific research. However, conservative eschatology, religious tradition, and religious commitment all influence the way Americans view the environment (Guth & Green, 1995).

## **CHAPTER 4: HYPOTHESES AND METHODOLOGY**

### **Hypotheses**

The literature discussed in previous chapters describes the characteristics that have been important in predicting environmental attitudes across a range of populations. Some, like gender have had mixed research indicating there is more to determining environmental attitude than being male or female. In the further analysis, many possible predictors will be examined at to clarify these differences among Southerners.

- Religion is a major part of life in the South and will predict environmental attitude among Southerners.
- Southern women will have a more favorable environmental attitude than Southern men will.
- As the literature suggests, ideology and partisan identification will be significant predictors of environmental attitude in Southerners.
- Economic status is different in the South. More poverty and less education are typical predictors of lower concern for the environment. It is hypothesized economic status will predict environmental attitude among Southerners.

## **Methodology**

The data used will be from a 2009 survey conducted by the PEW Research Center for the People and the Press (Press, 2009). The survey utilized telephone<sup>2</sup> interviews to interview 2001 people between April 28, 2009 and May 12, 2009. Respondents were informed the interview would take about twenty minutes to complete.

### Definitions:

- Southern- the 11 confederate states.
- Environmentalism- support for specific questions on the environment, including belief in global warming and concern for global warming.
- Increased Spending- questions that indicate money being spent to support the environment.

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<sup>2</sup> Some interviews were conducted on landlines while others were cell phones. Respondents from cell phones were offered ten dollars for their participation to cover the cost.

- Government Intervention-requires new laws they could be seen as restricting freedoms previously granted.
- Southern Exceptionalism- The extent to which Southerners are distinctive from their Northern counterparts.

After a review of the literature, I believe Southern voters will be less likely to rank global warming as a top concern when ranking issues of what the most important problems facing the United States today. Some literature has shown region not to have a strong, significant impact (Jones & Dunlap, 1992), but I believe an extensive survey of the American South will show a significant difference because of the unique values of the South. Due to sanctions placed on the South following the Civil War, the South has a different set of priorities that seem more pressing. I also believe that because of the unique bond the South shares with religion there will be fewer Southerners that believe the Earth is getting warmer because of human activity. I expect to find a link between Southerners who do not believe the Earth is getting warmer because of human activity and religion.

## **CHAPTER 5: DATA AND DESCRIPTIVE STATISTICS: AN OVERVIEW OF RELEVANT VARIABLES**

Dependant variables are chosen to represent environmental concern. Two questions in the April 2009 PEW survey represent environmental concern. Those variables and all independent variables will be discussed in this section. There were 2001 respondents in the April 2009 PEW survey. Most of the variables do not include the respondents that “refused” to answer the question or said they “did not know,” so some variables have fewer than 2001 respondents. After each variable has been described, each independent variable will be tested with each dependant variable to determine which independent variables are relevant to further analysis. A multivariate model will then be used to explain how the relevant independent variables affect environmental concern.

Figure 3: Views about Earth’s Temperature

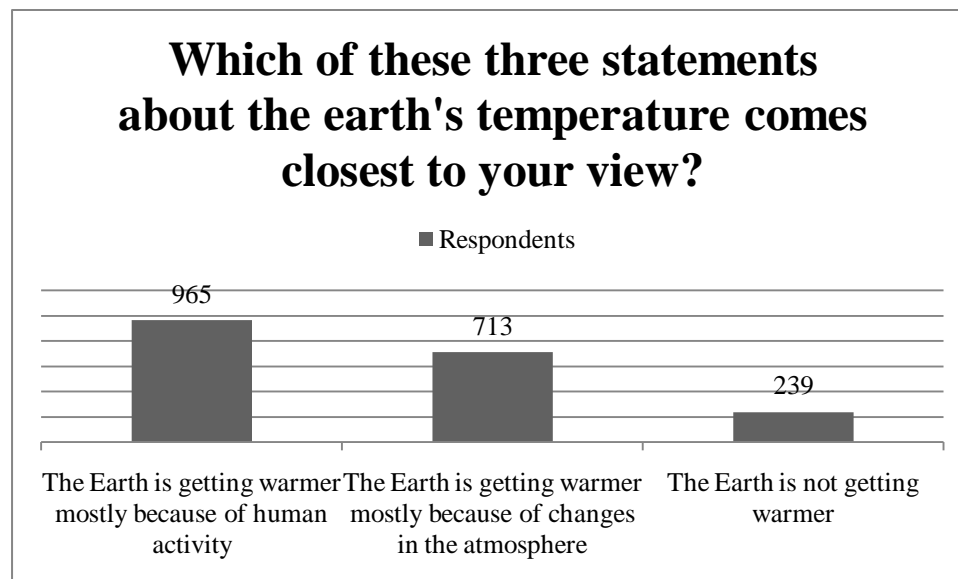


Figure 3 represents the first dependant variable. Respondents were asked to choose which of the three responses best matches their view toward the Earth’s temperature.

The question was asked two ways to ensure respondents were not choosing the first or last choice given. Respondents were asked to choose between: the Earth is getting warmer mostly because of human activity such as burning fossil fuels, the Earth is getting warmer mostly because of natural changes in the atmosphere and the Earth is not getting warmer. The 956 respondents who answered the Earth is getting warmer because of human activity were given a numeric value of one. The 713 respondents who believe the Earth is getting warmer because of natural changes in the atmosphere were given a numeric value of two. The 239 people who said the Earth is not getting warmer were given a numeric value of three. Further analysis will examine which individual characteristics fall into each category. After combining the two questions there were 1917 respondents that answered, all others either “refused” to answer or said they “did not know.” Respondents were not given the option to refuse or say they “did not know,” but they were not pressured to answer the question. The answers were given numerical values as indicated above. The mean between these variables is 1.6212 and the standard deviation is 0.6963.

Figure 4: Seriousness of Global Warming

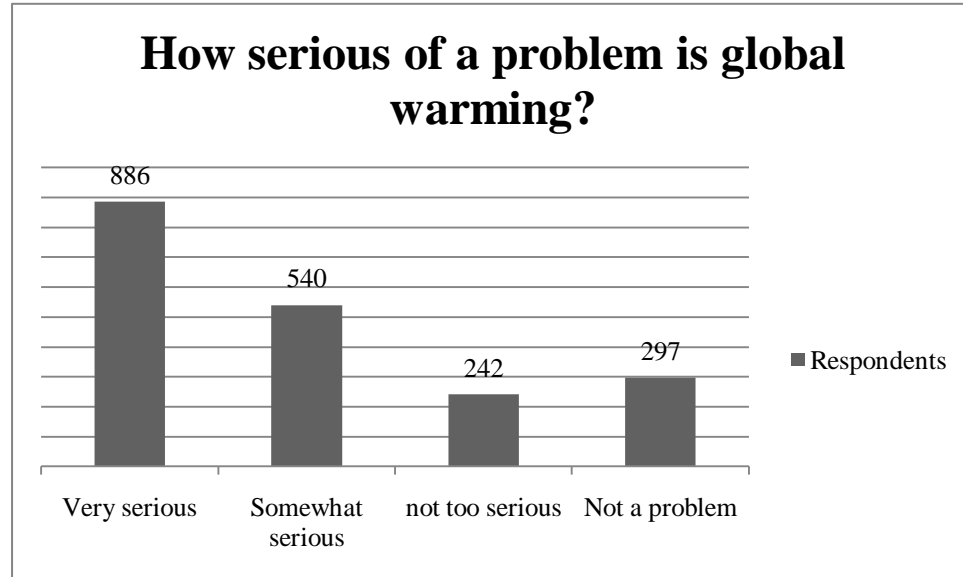


Figure 4 is the second dependant variable. Respondents were asked in their view, is global warming a “very serious” problem, “somewhat serious,” “not too serious,” or “not a problem”? The responses were given a numerical value ranging from one-four with one being “very serious” and four being “not a problem.” After removing the respondents that “refused” to answer or said they “did not know” there are 1965 respondents ranging from one and four. The mean is 1.9745 and the standard deviation is 1.0856. Most respondents agree global warming is either a serious problem or a “somewhat serious” problem.

Figure 5: Respondents in Southern and Non-Southern States

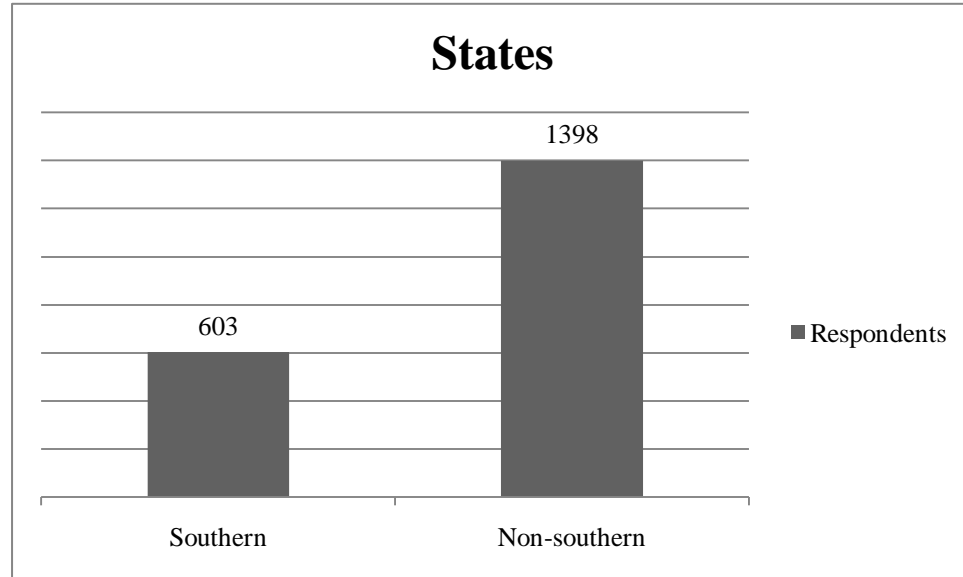


Figure 5 shows the state variable. Each state was divided into a Southern or non-Southern state. The original confederate states are labeled Southern (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, Tennessee, and Virginia). There were 603 respondents in the Southern category and 1398 in the non-Southern category. Southerners represent approximately 30% of the respondents and non-Southerners represent approximately 69% of the respondents. Southern states were coded as a one and non-Southern states were coded with a zero, creating a dummy variable for Southern states. All respondents answered this question for a total of 2001 respondents.



Figure 6: Gender

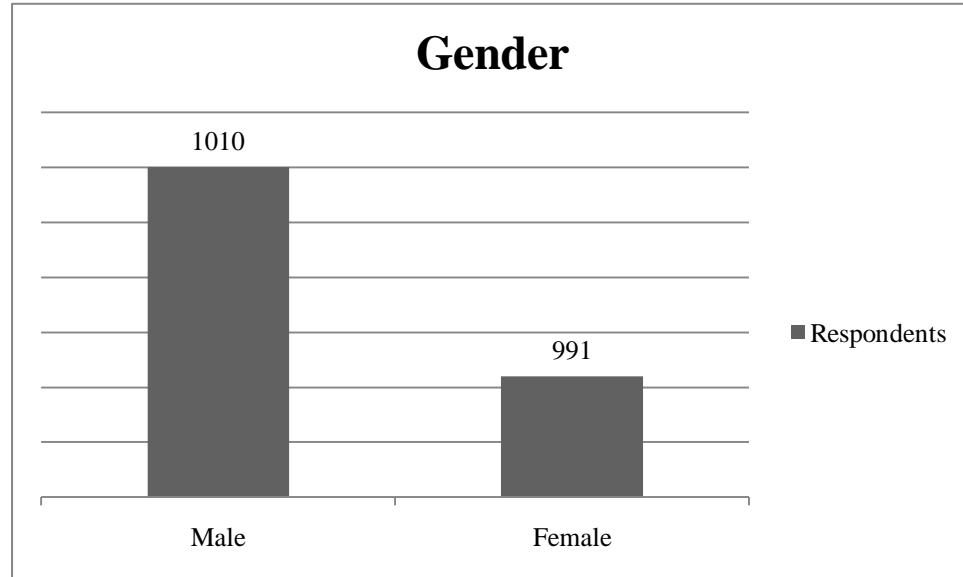


Figure 6 shows the amount of men and women within the survey. There are 1010 men in the survey and 991 women in the survey. Men represent approximately 50.5% of the respondents and women represent approximately 49.5% of the respondents. Female respondents were given a one and male respondents were coded with a zero, making a dummy variable for women. There are more male respondents because when the interview was conducted the person conducting the interview first asked for the youngest adult male respondent, then the youngest adult female. Therefore, if there were a male and female adult in the same household only the male was interviewed. This resulted in more men completing the survey.

Figure 7: United States Ranking in Science

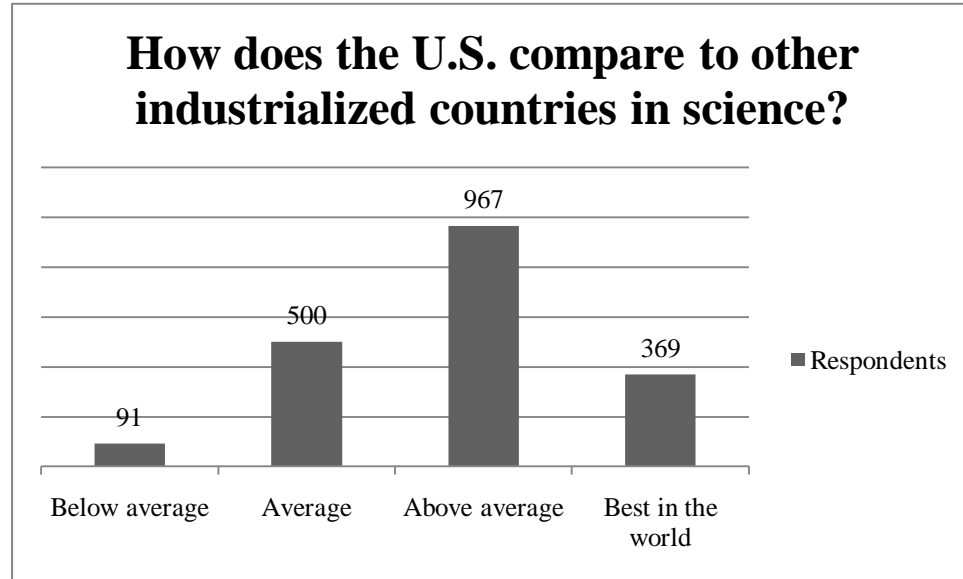


Figure 7 asked the respondents to compare the United States to other industrialized countries in science. Respondents were asked to rank the United States from below average to best in the world based on its scientific achievements. Below average was given a numerical value of one, average was given a value of two, above average was given a value of three, and best in the world was given a numerical value of four. The mean is 2.8375 and the standard deviation is 0.7834. Most respondents, 976, ranked the United States above average in science compared to other industrialized countries. Only 591 of 1927 respondents ranked the United States below average or average.

Figure 8: United States Political Ranking

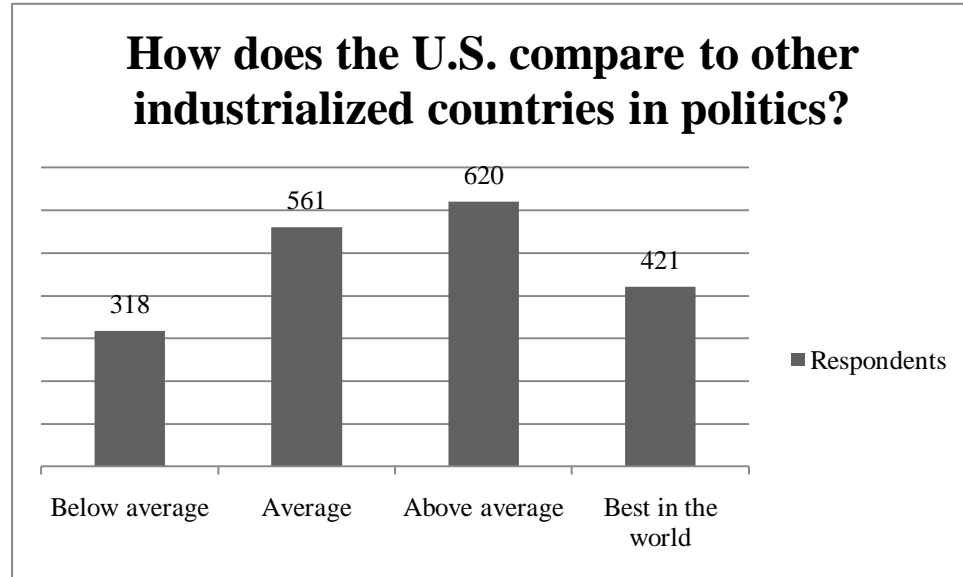


Figure 8 represents the answers given by respondents when asked how the United States compared to other industrialized countries in politics. Three hundred eighteen (318) respondents ranked the United States below average, while 421 respondents ranked the United States among the best in the world. Each response was given a numerical value from one to four, with one being below average, two being average, three being above average, and four being the best in the world. The mean is 2.5958 and the standard deviation is 1.0055. Most respondents ranked the United States above average.

Figure 9: Degree Respondents Enjoy Keeping Up with Science

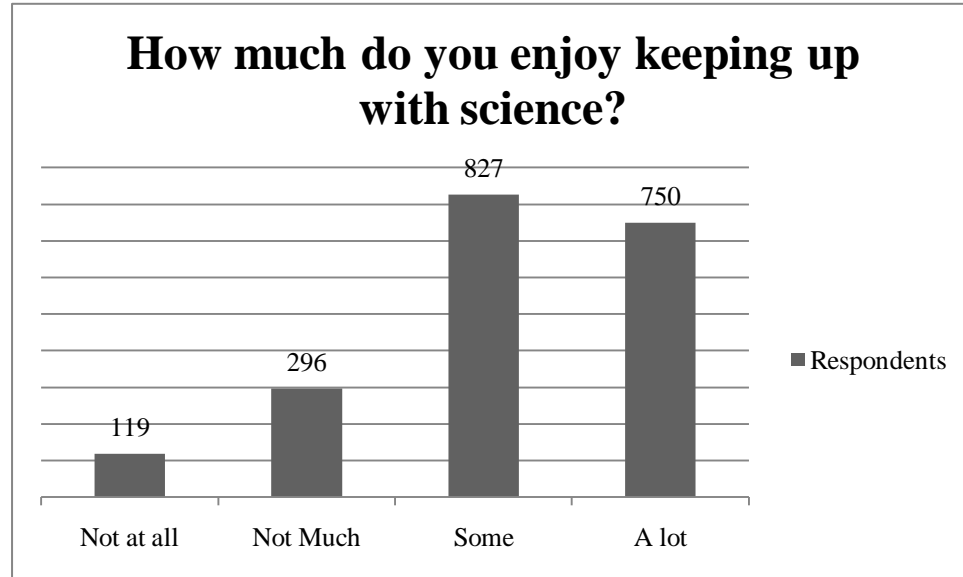


Figure 9 asked how much respondents enjoy keeping up with science. Most respondents said they enjoy keeping up with science some or a lot. Numerical values from one to four were given to each response. Respondents were ranked from one to four with one not enjoying science at all and four being those who enjoy keeping up with science a lot. The mean is 3.1084 and the standard deviation is 0.8675. This means most of the respondents said they do enjoy keeping up with science.

Figure 10: Viewing of Science Programs in Television

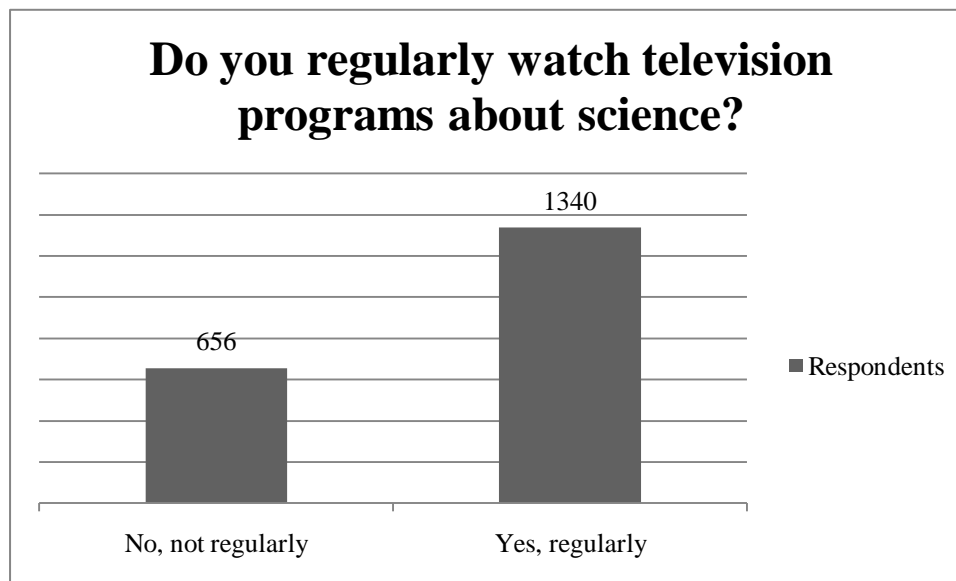


Figure 10 represents the amount of respondents that regularly watch television programs or channels about science such as Nova or Discovery Channel. The respondents who “refused” to answer or said they “did not know” were deleted from the data leaving 1996 respondents. Of those 1340 said, they do watch such programs and 656 said they do not regularly watch programs or channels about science. Approximately 33% of the respondents said they do not regularly watch television programs about science while roughly 67% said they do. The scale goes from zero to one, with zero representing those who do not regularly watch programs or channels about science.

Figure 11: Visits to Science Websites and Blogs

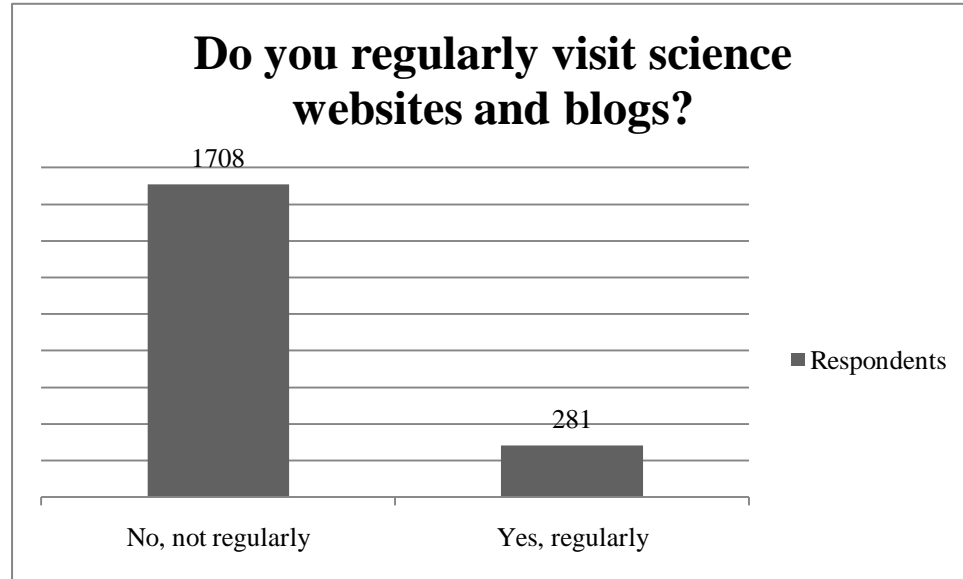


Figure 11 describes the answers given when respondents were asked if they visit science websites and blogs such as NOAA.gov or ScienceDaily.com regularly. One thousand seven hundred eight (1708) respondents said they do not regularly visit science websites or blogs. Only 281 respondents who said they do regularly visit science websites. One thousand nine hundred eighty-nine (1989) respondents answered this question. Only about 14% of the respondents indicated, they regularly visit science websites and blogs, while roughly 86% said they do not regularly visit science blogs and websites. A numerical value of zero was given to respondents who did not regularly visit science websites and blogs. A numeric value of one was given to respondents who indicated they do regularly visit science websites and blogs.

Figure 12: Reading Science Magazines

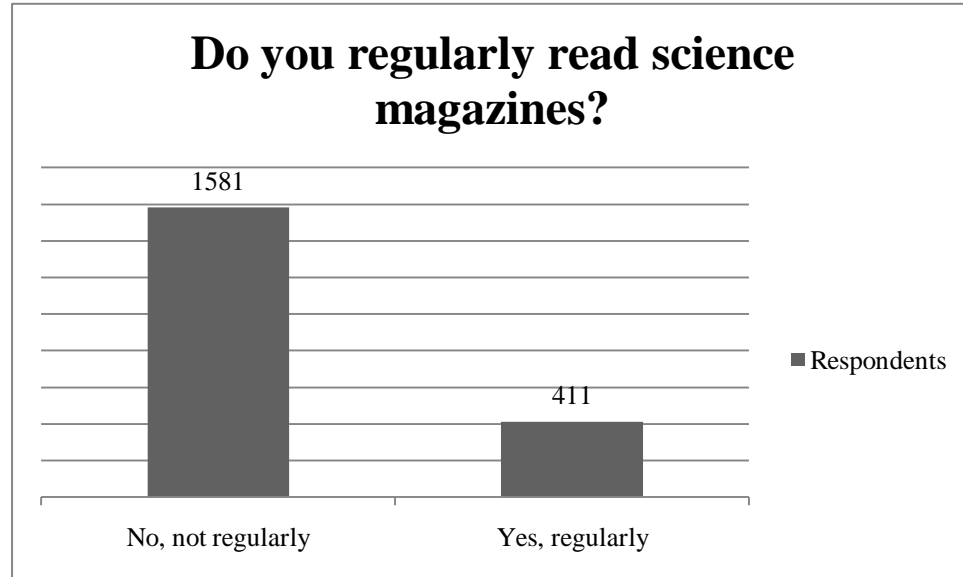


Figure 12 shows the responses given by respondents when asked if they regularly read science magazines such as Popular Science or Scientific American. Respondents who said they do not regularly read science magazines were given a numerical value of zero and respondents who said they do regularly read science magazines were given a one. The mean is 0.2063 and the standard deviation is 0.4047. Most respondents, 1581, roughly 79.4%, said they do not regularly read science magazines. While only 411, or about 20.6%, of the respondents said they do regularly read science magazines, for a total of 1992 respondents.

Figure 13: Positive Effect of Science on Society

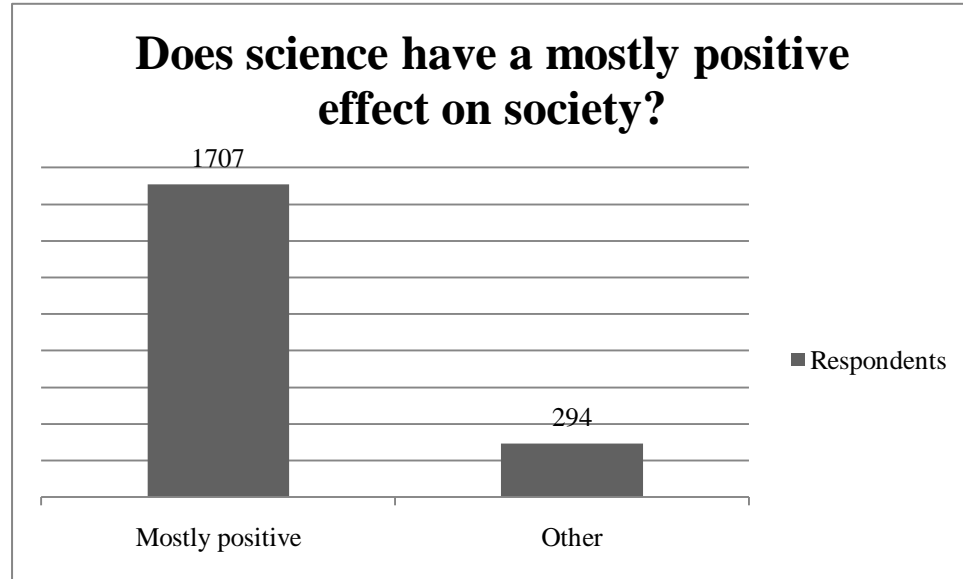


Figure 13 shows the distribution among respondents when asked if they believe science has a mostly positive effect on society. Respondents were given a one if they said science has a mostly positive effect on society; there were 1707 respondents in this category. All other respondents including those that “refused” or said they “did not know,” those that said mostly negative and those that said both or neither were given a numerical value of zero, 294 respondents fell into the other category. All respondents were placed in one of the two categories for this variable to indicate rather they believe science has a mostly positive effect on society. All respondents were included in this category, if they did not believe science had a mostly positive effect on society they were placed in the “other” category. Most respondents, about 85%, believe science has a mostly positive effect on society, while only about 15% of the respondents were in the “other” category.



Figure 14: Effect of Science on Society

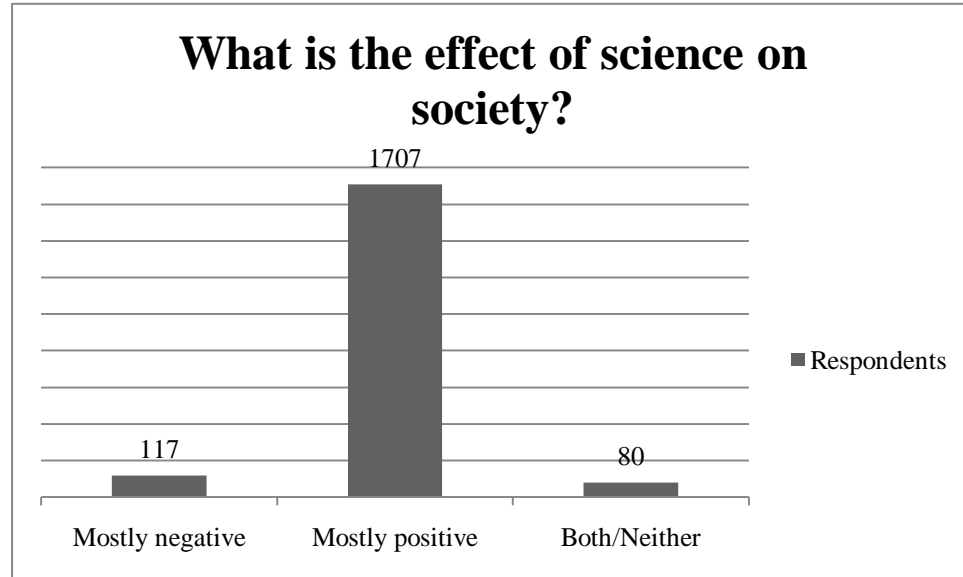


Figure 14 is based on the same question as Figure 13, but the categories are coded differently. Figure 14 excludes “don’t know” and “refuse” responses, so there are only 1904 respondents. The categories are given numerical values from one to three with one being “mostly negative,” two being “mostly positive,” and three being “both/neither.” One hundred seventeen (117) respondents believe science has a mostly negative effect on society. One thousand seven (1007) respondents indicated science has a "mostly positive" effect on society, the same as figure 11. Only 80 respondents said science had both or neither a mostly positive or mostly negative effect on society. Roughly, 89.7% of the respondents said science has a mostly positive effect on science, higher than the 85% in figure 13. This is explained by the removal of the “don’t know” and “refuse” responses. By removing those categories, it inflated the distribution. Approximately 6.1% of the respondents said science has a mostly negative effect on society and only about 4.2% of the respondents said both or neither.

Figure 15: Science Makes Life Easier

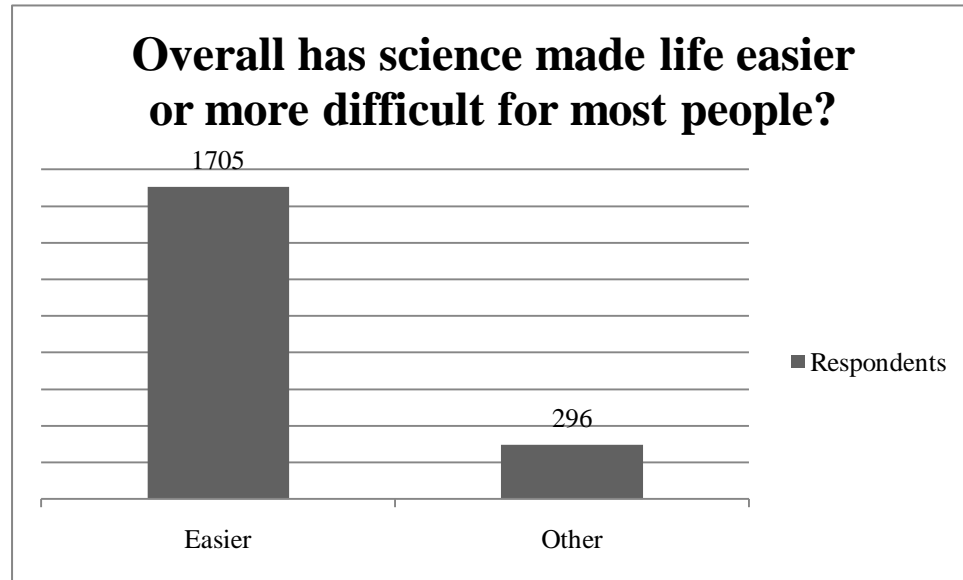


Figure 15 shows the responses given when respondents were asked if science made life easier or more difficult for most people. The question is similar to the question asked in Figures 13 and 14, so the results are also similar. However, the question was worded slightly different, so Figure 15 is not based on the same question as Figures 13 and 14. Figures 13 and 14 had 85% and 89.7% of the respondents who believed science has a mostly positive effect on society. Figure 15 has approximately 85%, or 1705, respondents who say science has made life easier for most people. All other responses, “mostly negative,” “not much of an effect,” “don’t know” and “refuse” were combined to make the other category. The “other” category has 296 total respondents, roughly 15%. All 2001 respondents were placed in one of the two categories to make a dummy variable to indicate respondents who believe science has made life easier. Easier is coded as a one and other is coded as a zero.

Figure 16: The Effect of Science on the Environment

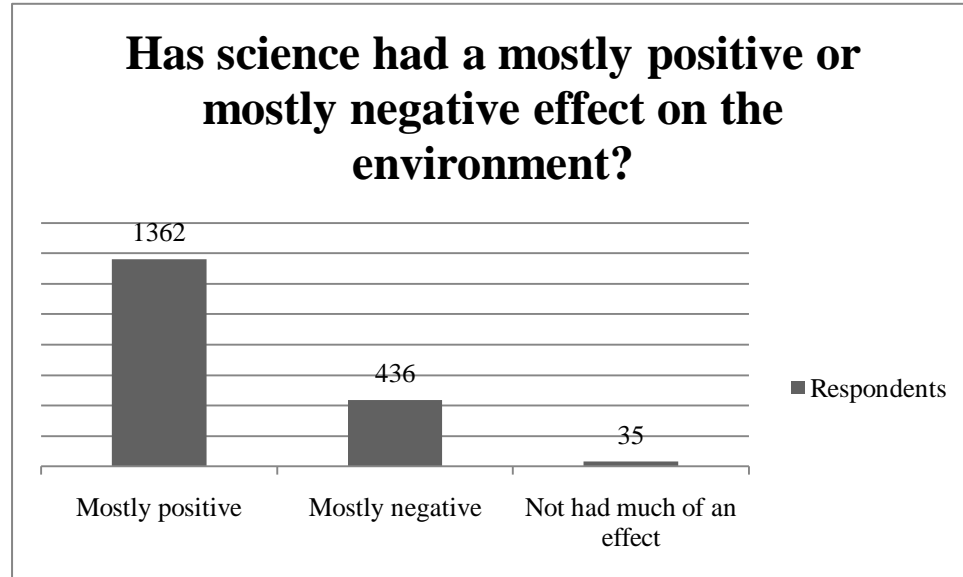


Figure 16 shows the results when respondents were asked if science has had a mostly positive or mostly negative effect on the environment. One thousand eight hundred thirty-three (1833) respondents answered the question and did not refuse to answer or say they “did not know.” One thousand three hundred sixty-two (1362) respondents believe science has a mostly positive effect on the environment. Four hundred thirty-six (436) respondents said science has a mostly negative effect on the environment. Only 35 respondents indicated science does not have much of an effect on the environment. The responses were given a numerical code from one to three with one being mostly positive, two being mostly negative, and three being not much of an effect. The mean is 1.2760 and the standard deviation is 0.4880. Most respondents were in the category mostly positive which makes the mean closer to one than two or three.

Figure 17: Science and Religion

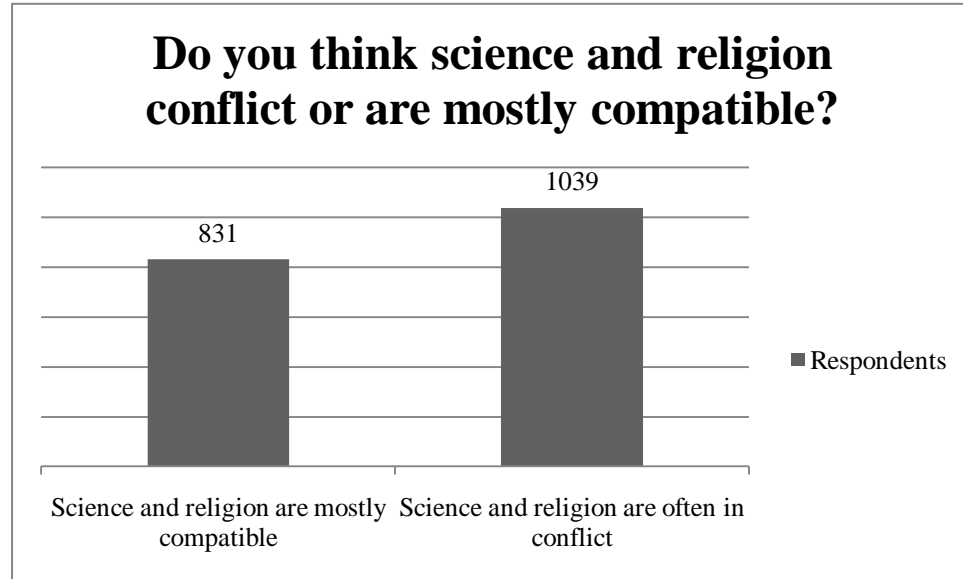


Figure 17 illustrates the question, do you think science and religion conflict or are mostly compatible? There were 1870 respondents once they “don’t know” and “refuse” to answer responses were removed. One thousand thirty-nine (1039) respondents believe science and religion often conflict while 831 respondents said science and religion are mostly compatible. Respondents that said science and religion are mostly compatible were given a numerical value of zero and those that said science and religion are often in conflict were given a one. The mean is 0.5556 and the standard deviation is 0.4970. The mean indicates the respondents are almost even split on rather science and religion conflict or are compatible.

Figure 18: Science and Conflicting Beliefs

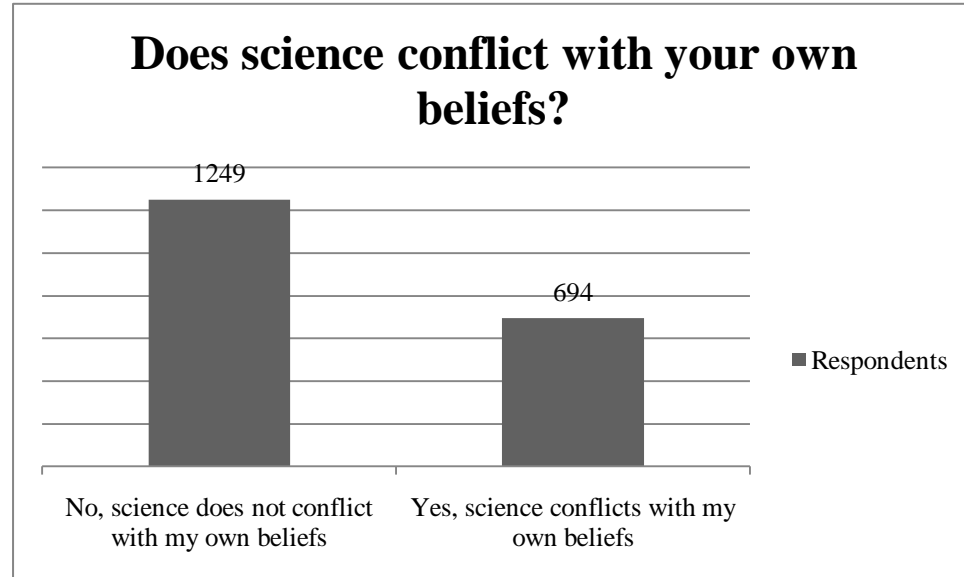


Figure 18 shows the answers given when respondents were asked if science conflicts with their own beliefs. There were 1943 respondents after they “don’t know” and “refuse” to answer responses were removed. Most respondents, 1249 of 1943 said science does not conflict with their own beliefs. Those respondents represent approximately 64% of all respondents. Six hundred ninety-four (694) respondents, roughly 36%, said science does conflict with their beliefs. A numerical value of zero was given to respondents that said science does not conflict with their own views and a value of one was given to indicate a response that science does conflict. The mean expresses more evidence that most respondents do not think science conflicts with their own beliefs.

Figure 19: Scientist Agree the Earth is Getting Warmer

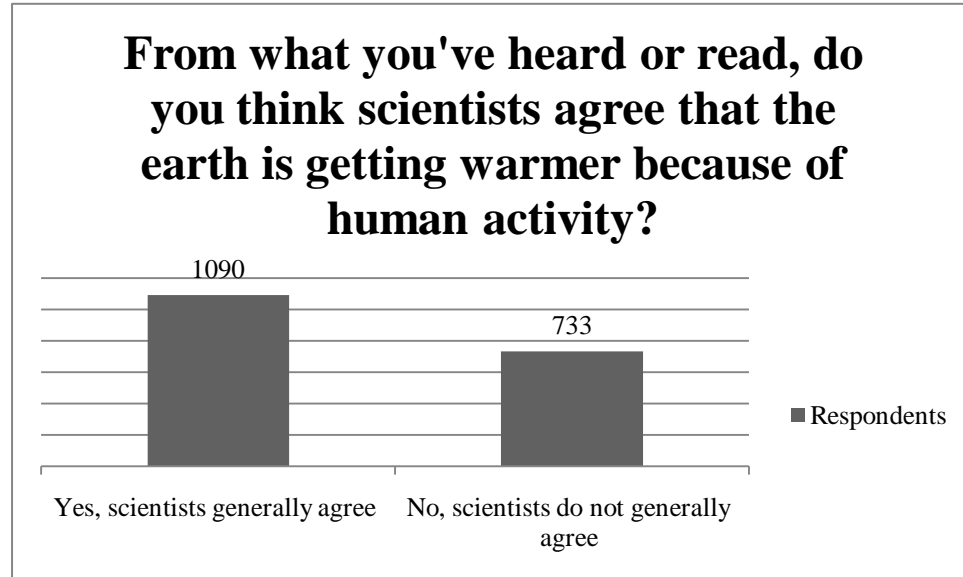


Figure 19 illustrates the responses given when respondents were asked, from what you have heard or read, do you think scientists agree that the Earth is getting warmer because of human activity? There were 1823 respondents who answered, "yes scientists do generally agree" or "no, scientists do not generally agree." One thousand ninety (1090), roughly 60%, of the respondents said scientists generally agree the Earth in getting warmer because of human activity. Seven hundred thirty-three (733), approximately 40%, of the respondents said scientists do not generally agree. Numerical values were given to respondents that said yes of one and respondents that said no were given a two.

Figure 20: Respondents View of Scientist's Political Leanings

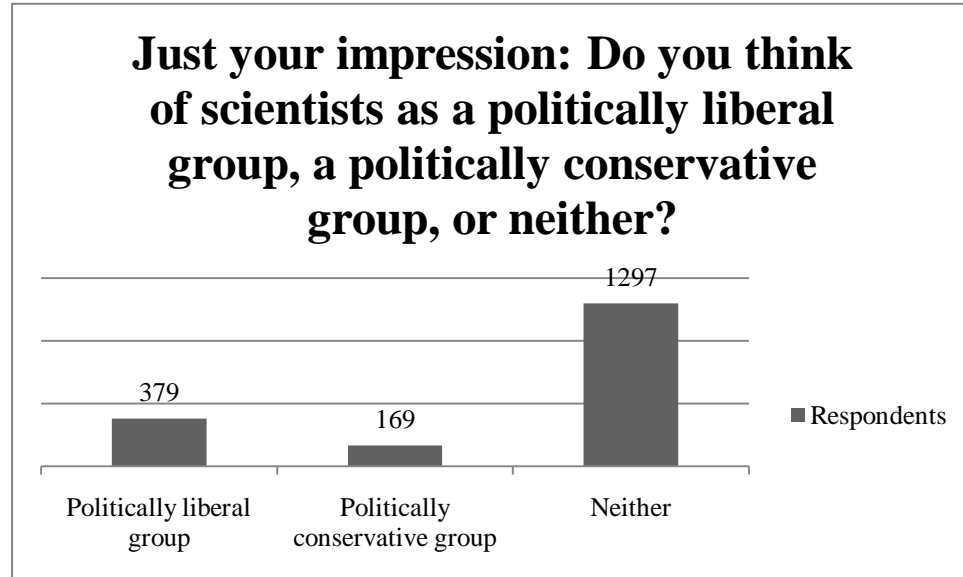


Figure 20 asked respondents if they believed scientists are a liberal or conservative group or neither. Of the 1845 respondents 1297 said they did not believe scientist were a politically liberal or politically conservative group. One hundred sixty-nine (169) respondents believe scientists are a politically conservative group and 379 respondents believe scientists are a politically liberal group. Numerical values were given from one to three with one being a politically liberal group, two being politically conservative, and three being neither. The mean is 2.4975 and the standard deviation is 0.8131.

Figure 21: Education

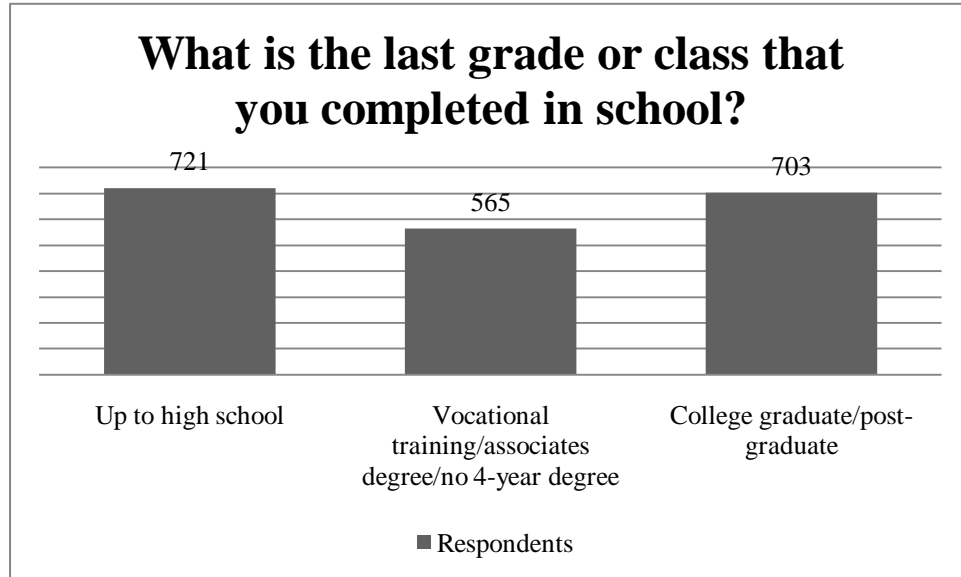
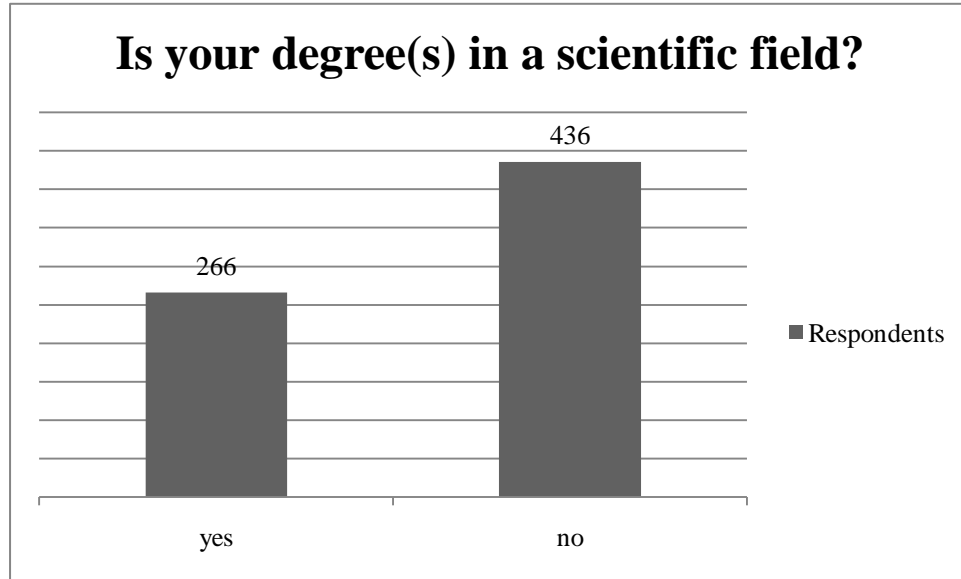


Figure 21 shows the education respondents had completed at the time of the survey. Numerical values were given from one to three. Seven hundred twenty-one (721) respondents did not complete any education beyond high school, 565 respondents had completed some formal training beyond high school, and 703 respondents were college graduates with a four-year degree or beyond. Respondents that did not complete education beyond high school were given a one; those that had completed a program beyond high school but did not have a bachelor degree were given a numerical value of two, and those with a bachelor degree or beyond were given a three. The mean is 1.9909 and the standard deviation is 0.8462.



Figure 22: Scientific Degree



For Figure 22 respondents with a four-year college degree were asked if any of their degrees were in a scientific field. There were 703 respondents that were asked this question and only one refused to answer. A numeric value of one was given to the 266 respondents who said their degree is in a scientific field and a numeric value of zero was given to the 436 respondents who said their degree is not in a scientific field. Approximately 62% of the respondents did not have a degree in a scientific field, leaving roughly 38% of the respondents that do have a degree in a scientific field. Most respondents did not have a degree in a scientific field.

Figure 23: Race

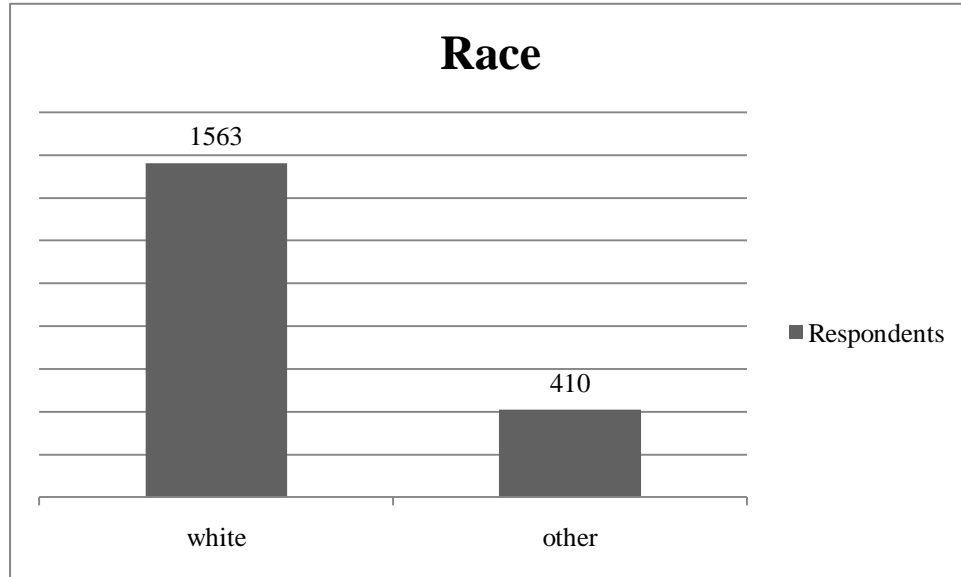


Figure 23 indicates the race of the respondents. One thousand five hundred sixty-three (1563) respondents indicated they were white and 410 respondents in all other races combined. Whites were given a numeric value of zero and all others were given a numeric value of one. The 28 respondents who responded with “don’t know” or “refuse” to answer were excluded, leaving 1973 respondents in this variable. Whites represent approximately 79% of the respondents. All other races combined represent roughly 21% of the respondents that chose to answer this question. Even after combining all other responses, white has the most respondents.

Figure 24: Marital Status

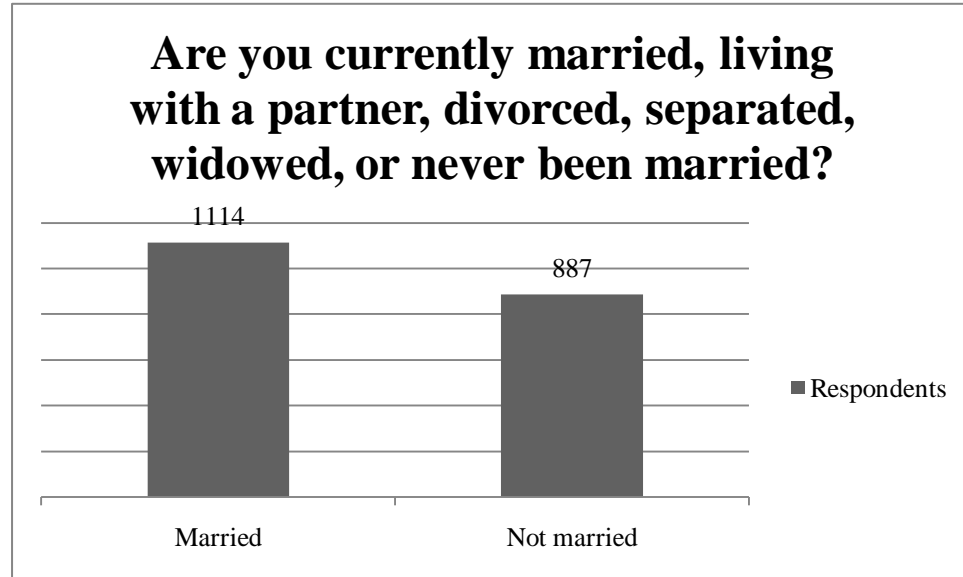


Figure 24 indicates if the respondents were married at the time, they were interviewed. One thousand one hundred fourteen (1114) respondents were married. The other categories, living with a partner, divorced, separated, widowed, never been married, “don’t know,” and “refuse” were combined for 887. All 2001 respondents were included in this variable to create a dummy variable for married respondents. A numeric value of one was given to married and zero for all others. About 56% of the respondents were married and roughly, 44% of them were not married.

Figure 25: Born Again Christian

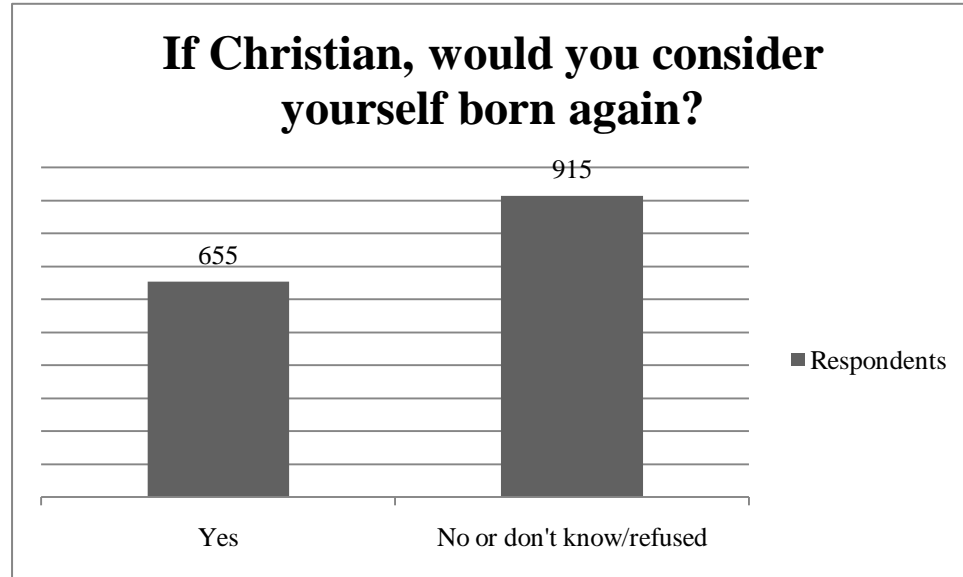


Figure 25 represents Christians, as determined from a previous question, who consider themselves born again or not. Six hundred fifty-five (655) respondents indicated they were born again Christians; they were given a numeric value of one. The 915 respondents that indicated they were not born again Christians or said they “did not know” or “refuse” to answer were given a numeric value of zero. There were 1570 respondents asked this question. Of those, roughly 58% of the respondents did not consider themselves born again while approximately 42% did consider themselves born again.

Figure 26: Attendance of Religious Services

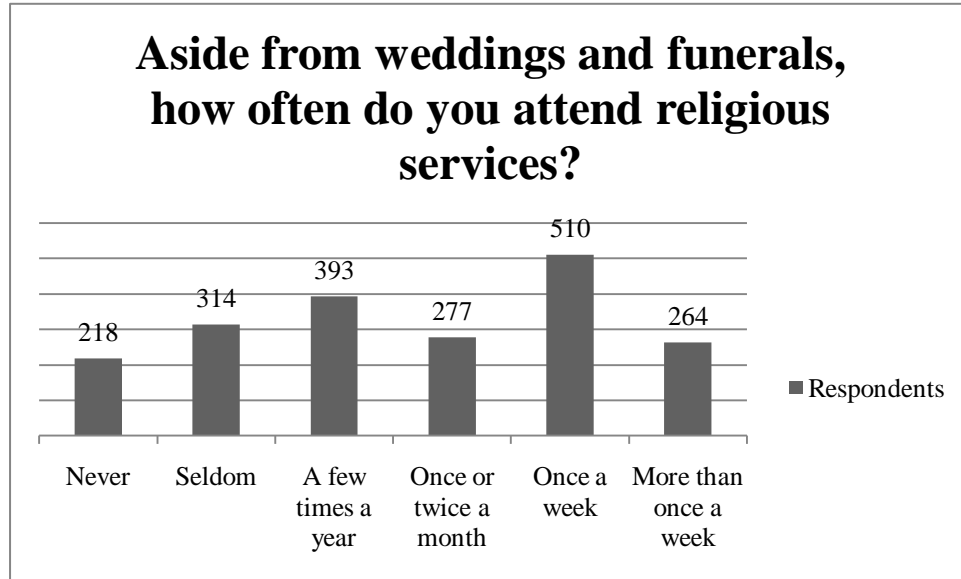


Figure 26 indicates the frequency of attendance to religious services for each respondent. The 218 respondents who said they never attend religious services aside from weddings and funerals were given a numeric value of one. The 314 respondents who indicated they seldom attend religious services were given a numeric value of two. The 393 respondents who said they attend religious services a few times a year were given a numeric value of three. The 277 respondents who said they attend religious services once or twice a year were given a numeric value of four. The 510 respondents who indicated they attend religious services once a week were given a value of five. The 264 respondents who indicated they attend religious services more than once a week were given a numeric value of six. The mean is 3.3223 and the standard deviation is 1.5865. There were 1976 respondents included in Figure 26.

Figure 27: Does Clergy Speak of Science?

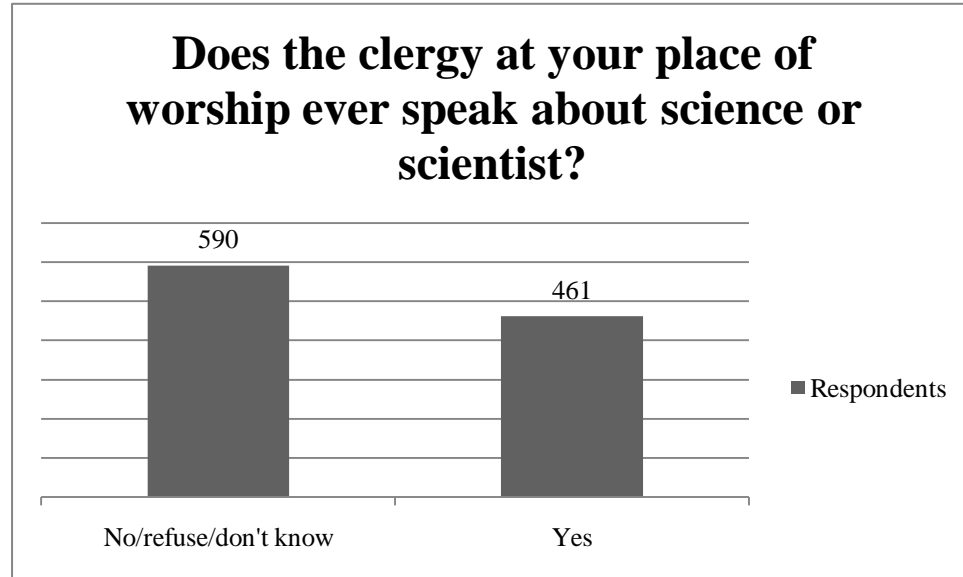


Figure 27 shows the responses given when respondents were asked if the clergy at their place of worship ever speaks about science or scientists. There were 590 respondents who said they “did not know,” “refused” to answer or said their clergy did not speak about science or scientists. They were given a numeric value of zero. Four hundred sixty-one (461) respondents said their clergy did speak of science or scientists. They were given a numeric value of one. Only respondents who said they attended church more than once or twice a month were asked this question, so there were only 1,051 total respondents. Approximately 44% of the respondents said the clergy at their place of worship does speak of religion, about 56% of the respondents said they “did not know,” “refused” to answer, or said their clergy did not speak of science or scientist.

Figure 28: Is Clergy Critical or Supportive of Science?

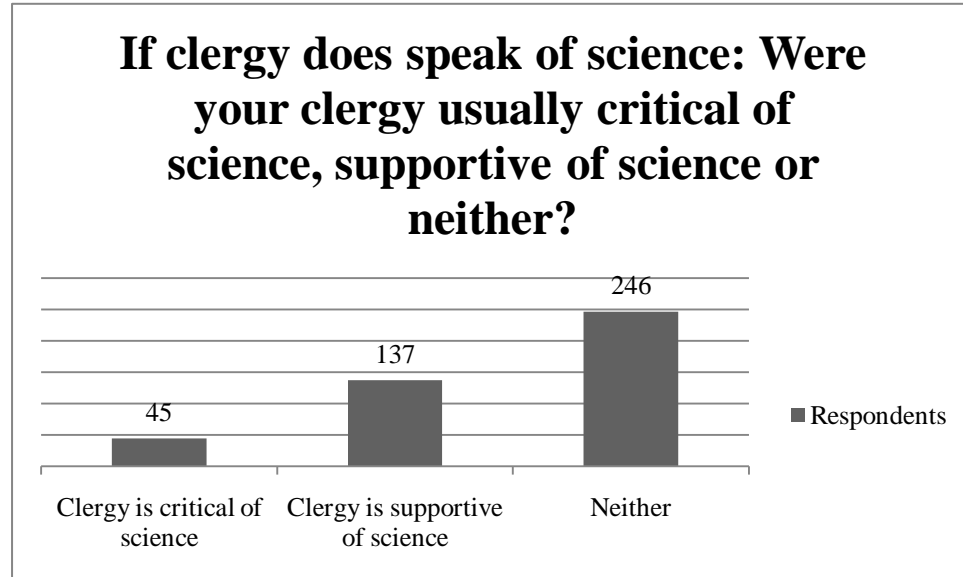


Figure 28 describes the responses given when the 461 respondents who said their clergy does speak of science or scientists were asked if their clergy is usually critical of science, supportive of science or neither. Only 461 respondents were asked this question. There were 428 respondents after 33 who “refused” or “did not know” were removed from this figure and the statistics. Forty-five (45) respondents said their clergy is critical of science; they were given a numeric value of one. One hundred thirty-seven (137) respondents said they clergy are supportive of science; they were given a numeric value of two. Two hundred forty-six (246) respondents said their clergy is neither critical nor supportive of science; those respondents were given a numeric value of three. The mean is 2.4696 and the standard deviation is 0.6964.

Figure 29: Income

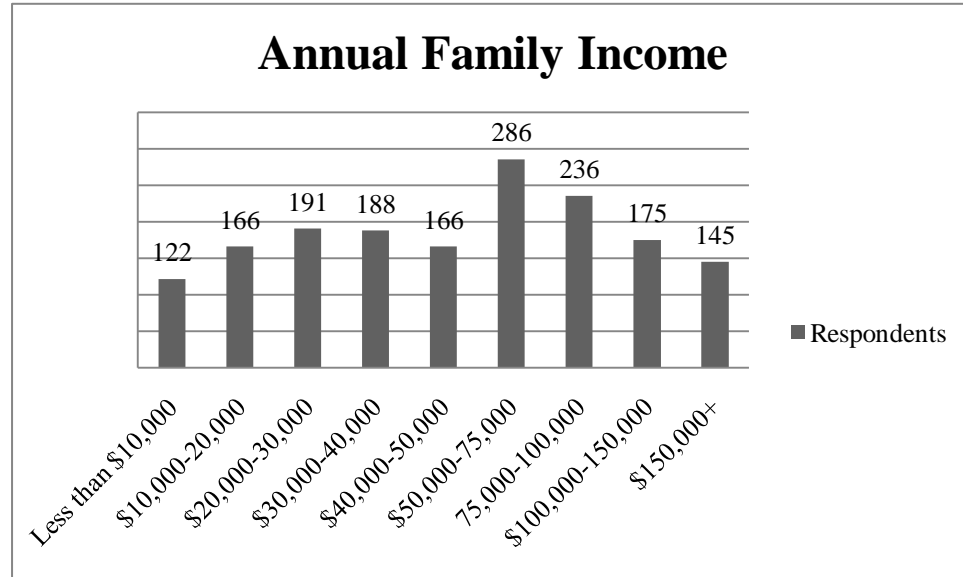


Figure 29 represents the total household income for each respondent. Most respondents fell between \$50,000 and just under \$75,000 for their annual income, 286. One thousand six hundred sixty-five (1665) respondents answered the question; the other 336 refused to answer or said they “did not know.” The 336 respondents who refused to answer or said they “did not know” are not represented. Each category was given a numerical value from one to nine. As income increases, the numeric value also increases, so one is equal to less than \$10,000 and nine is over \$150,000. The mean is 5.2084, which is just above the middle, but would have been greatly influenced if the 336 respondents who refused had been left in. The standard deviation is 2.3629.



Figure 30: Party Identification

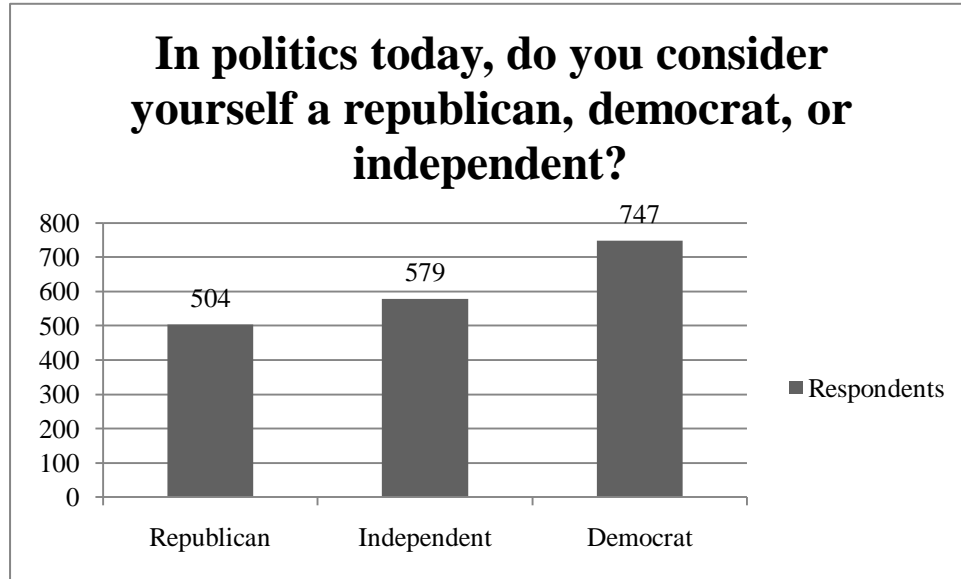


Figure 30 represents the party each respondent considers themselves at the time of the survey. Most respondents 747, approximately 40.8%, included identify with the Democratic Party; they were given a numeric value of three. Republicans represent the smallest group with only 504 respondents, about 27.5%; they were given a numeric value of one. Independents represent 579, roughly 31.6%, of the respondents. Independents were given a numeric value of two, placing independents between Democrats and Republicans.

Figure 31: Ideology

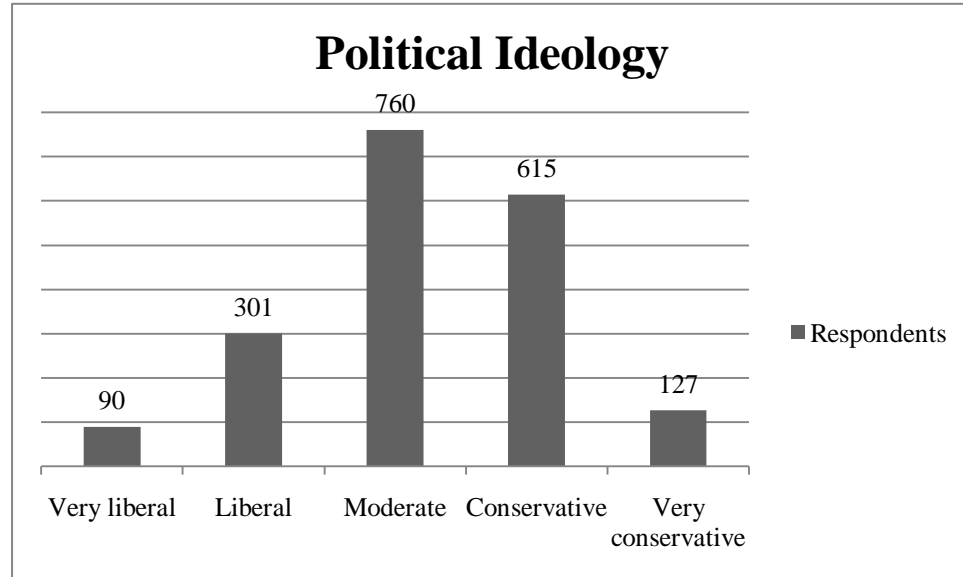


Figure 31 represents the political ideology of each respondent. Numeric values were given to each category ranging from one to five. The 90 respondents coded with a one indicated they were very liberal. Three hundred one (301) respondents said they were liberal and were coded with a two. A three was used for the 760 respondents who consider themselves moderate. A four was given to the 615 respondents who consider themselves conservative, and a five was given to the 127 respondents who consider themselves very conservative. There were 1893 respondents included. The mean is 3.2049, very close to the middle and the standard deviation is 0.9491.

Figure 32: Employment



Figure 32 represents whether the respondents were employed at the time of the survey or not. The 1149 respondents who were employed part-time, full-time, “did not know” or “refused” to answer were coded other and given a numerical value of zero. The 852 respondents who indicated at the time of the survey that they were unemployed were given a numeric value of one. About 57.4% of the respondents were in the “other” category, indicating they were employed or refused to answer and roughly, 42.3% of the respondents were unemployed or retired.

Figure 33: Age

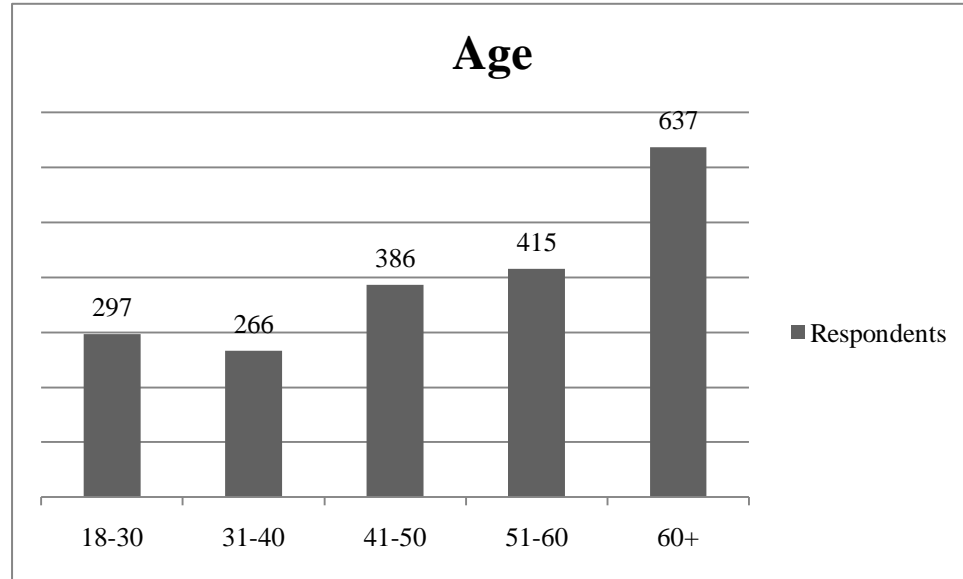


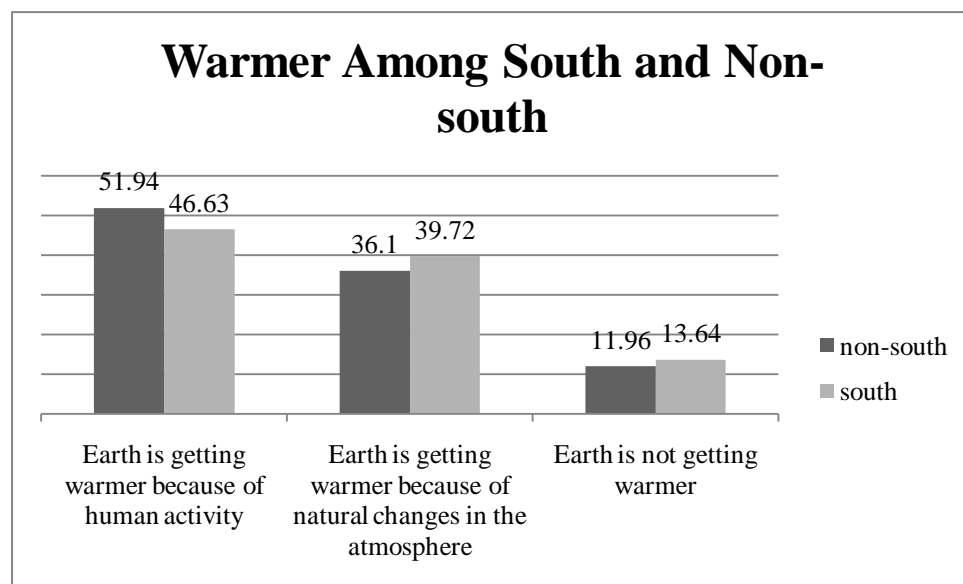
Figure 33 displays the age range of respondents. Most respondents were over 60 years old. There were 297 respondents between the ages of 18 and 30. Two hundred sixty-six (266) respondents were between 31 and 40, 386 respondents were between 41 and 50, 415 respondents were between 51 and 60 years old, and 637 respondents were over 60 years old or said they “did not know” or “refused”. All 2001 respondents were included in this variable. In the larger model, a variable using each age is used instead of the variable that groups ages together. This variable is only used in the cross tabulation and here to illustrate the variation without the confusion of over 80 variables.

## **CHAPTER 6: BI-VARIATE ANALYSIS: ENVIRONMENTAL CONCERN,**

### **RELIGION, AND THE SOUTH**

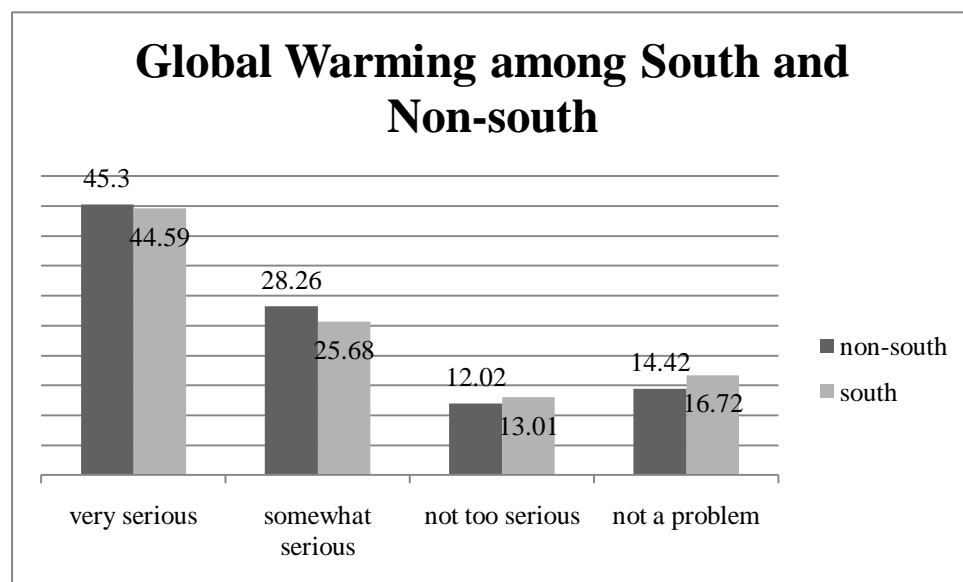
In this chapter, the relationship between environmental attitudes and various independent variables are considered. In this first initial look, only cross tabulations will be used to obtain a better insight into the relationships between variables. The next chapter will consider many of the variables that are significant in the cross tabulations here to conduct a multivariate analysis. Each figure shows the relationship between the two dependant variables warmer and warming and an independent variable using the probability of Pearson's chi2. Each chart shows the percentage of each dependant variable across the independent variable. (For example, the total for all non-Southerners across each of the choices for the dependant variable is equal to 100.) The dependant variable warmer asks respondents to choose which of three responses best fits their opinion on the Earth's temperature increase. The dependant variable warming asks respondents to rate the importance of global warming.

Figure 34: Global Warming and South



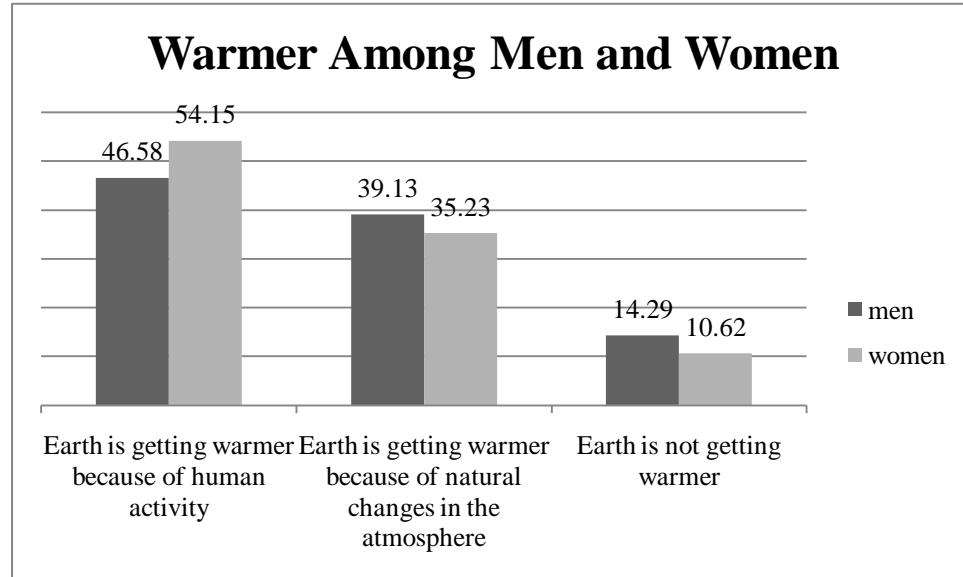
The variable South was not statistically significant with the dependant variable warmer (which asks respondents about their feelings toward global warming). Statistical significance is based on a 0.05 level and the significance level for these two variables is 0.100. The variable is still significant at 90% effectiveness. Although it is not statistically significant, there is an obvious pattern showing Southerners are less likely to believe the Earth is getting warmer because of human activity.

Figure 35: The Importance of Global Warming and South



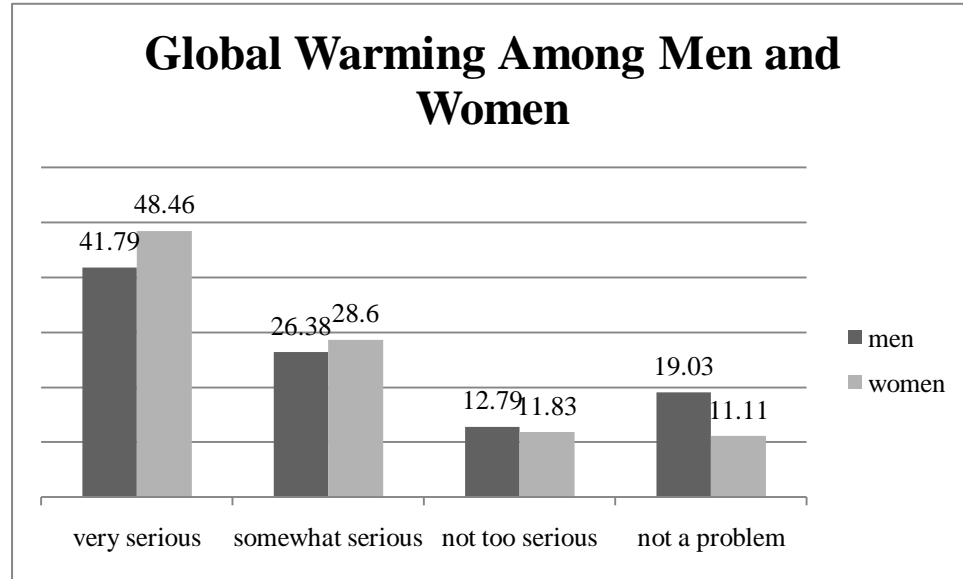
The figure above looks at the degree of importance respondents ranked global warming among both Southern and non-Southern respondents. The significance level for this model is 0.419, nowhere near the 0.05 level necessary to be statistically significant. Despite the fact, this variable is not statistically significant there is still a pattern that should be mentioned. Southerners are less likely to believe global warming is a “very serious” or “somewhat serious” problem and more likely to believe global warming is “not too serious” or “not a problem.” Although it is not statistically significant, it does support the idea that Southerners are not as supportive of global warming.

Figure 36: Global Warming Across Gender



The above figure shows the differences in how respondents perceive global warming based on their gender. Women are more likely to believe the Earth is getting warmer because of human activity and less likely to believe the Earth is not getting warmer than men are. The significance level for this model is 0.002. This is significant, so it is likely we would find similar results in the population at large.

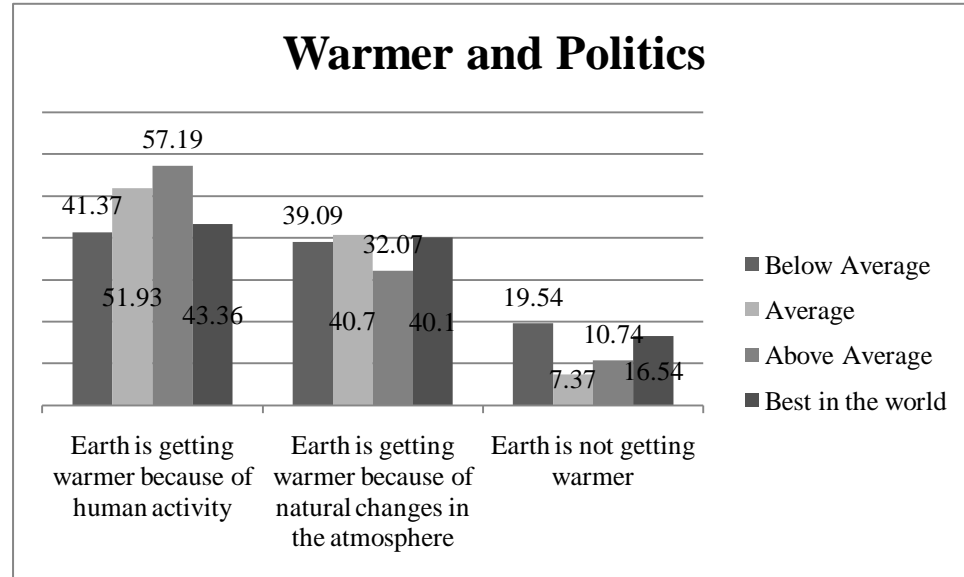
Figure 37: The Importance of Global Warming Across Gender



This figure shows the degree of importance men and women rated global warming. The relationship is significant at the 0.001 level. It is very likely to find similar results in the general population and women would rate global warming as a more serious problem than men would. Men are more likely to believe global warming is either “not a problem,” or not a serious problem.

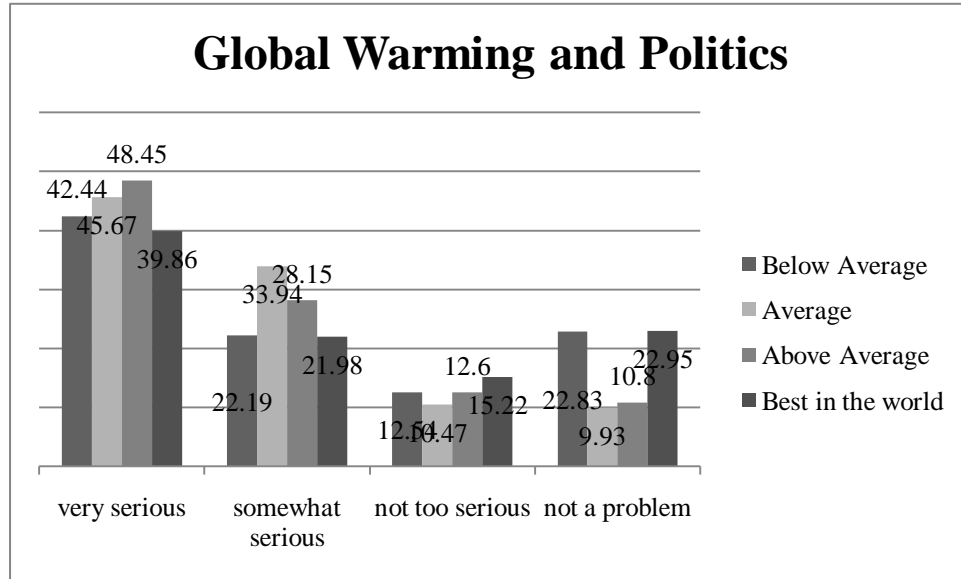


Figure 38: Global Warming and Politics



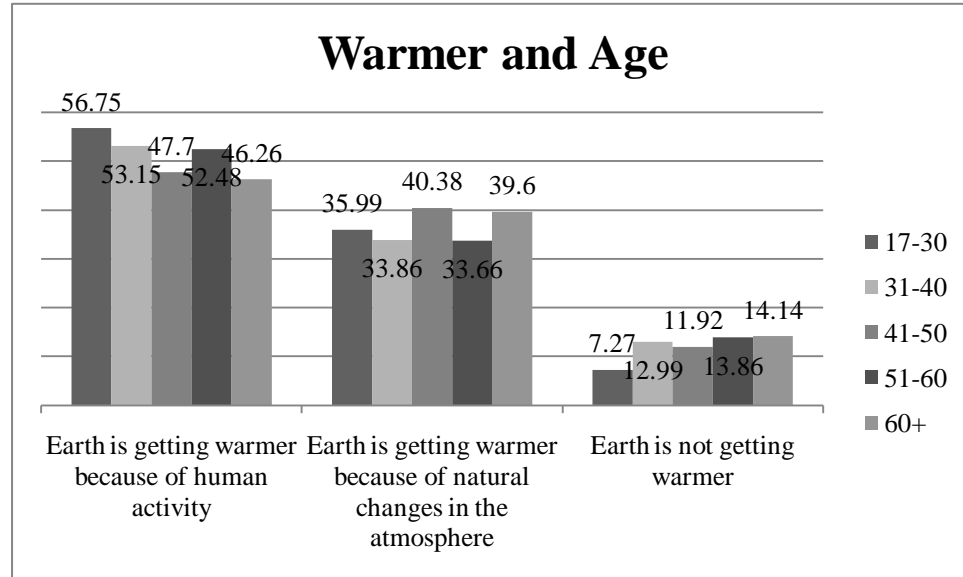
The above figure shows the relationship between the respondent's view of global warming and the way they view politics in the United States. This model is significant at the 0.001 level. Respondents who do not believe the Earth is getting warmer rank the United States political system below average and are least likely to believe the Earth is getting warmer because of human activity. Those who believe the United States political system is among the best in the world follow the same pattern as those who believe the United States political system is below average, but to a lesser degree. Respondents who believe the United States political system is average or above average are least likely to believe the Earth is not getting warmer.

Figure 39: The Importance of Global Warming and Politics



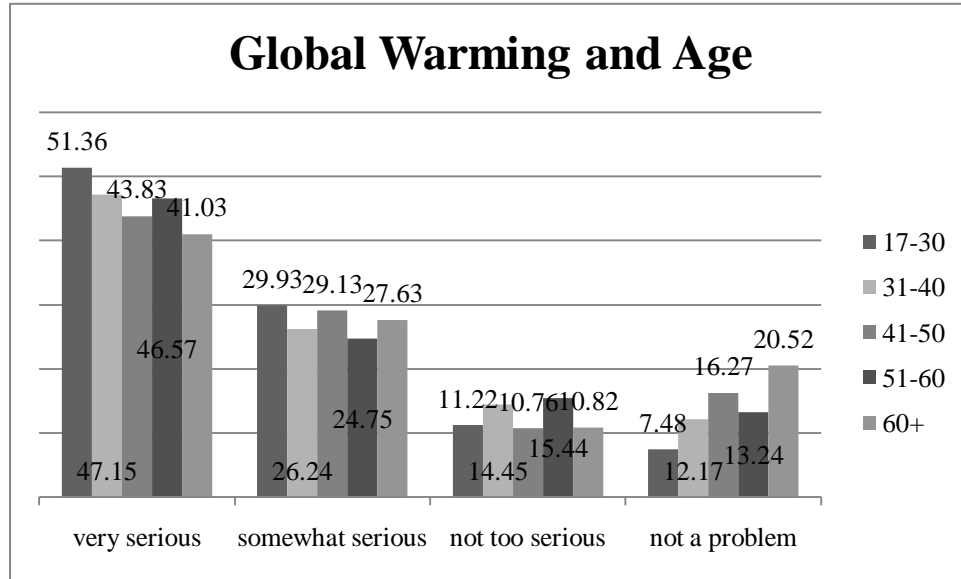
The figure above shows the relationship between the importance respondents placed on global warming and how respondents ranked politics in the United States. This is significant at the 0.001 level as well. Most respondents believe global warming is a “very serious” issue regardless of how they rank United States politics. Again though, the groups most likely to believe global warming is “not a problem” or that the Earth is not getting warmer are those that rank United States politics as below average or among the best in the world.

Figure 40: Global Warming Across Age



The above figure shows the relationship between how respondents view the Earth's temperature changes and age. The relationship is significant at the 0.05 level. Younger people are more likely to believe the Earth is getting warmer because of human activity and least likely to believe the Earth is not getting warmer. Respondents from age 41 to 50 and over 60 are most likely to believe the Earth is getting warmer because of natural changes in the atmosphere.

Figure 41: The Importance of Global Warming Across Age



The above figure represents the relationship between age and the degree of seriousness respondents believe global warming to be. Younger people are more likely to believe global warming is a “very serious” problem, caused by human activity and least likely to believe global warming is “not a problem” or does not exist. Respondents over 60 are least likely to believe global warming is a “very serious” problem and most likely to believe it is “not a problem.” The relationship is significant at the 0.001 level.

Figure 42: Global Warming and Religions Compatibility

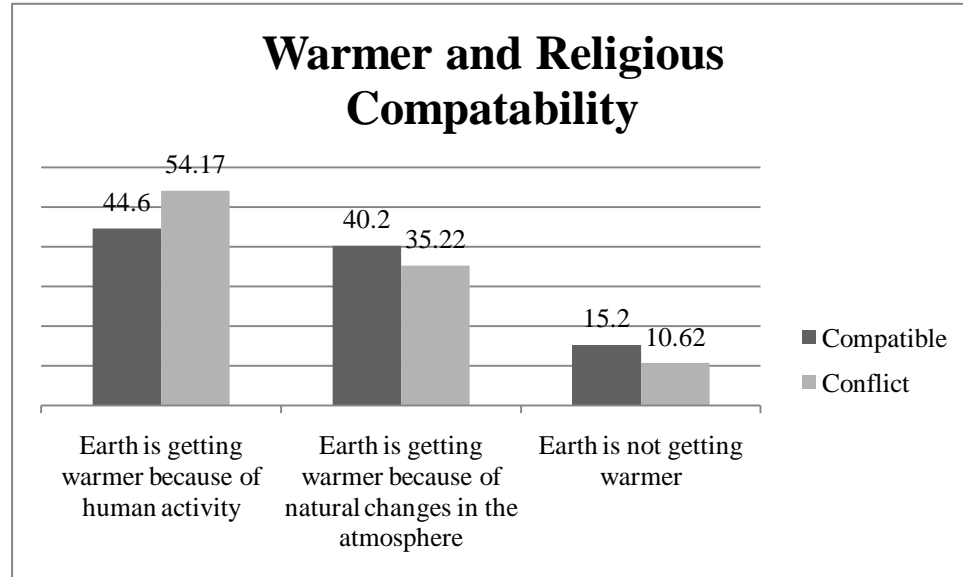
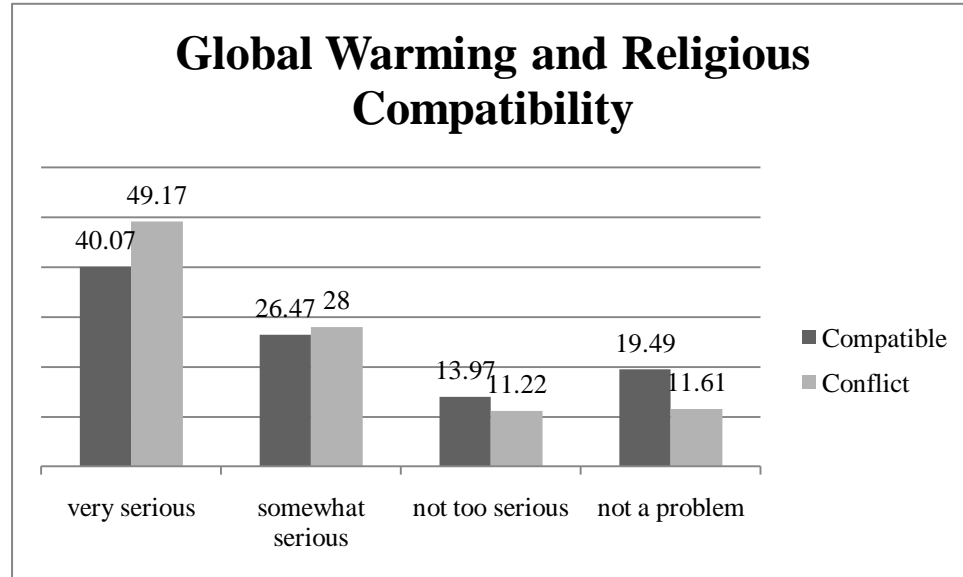


Figure 42 shows the relationship between the way respondents view global warming and whether or not the respondents believed religion and science conflict. The relationship is significant at the 0.001 level. Respondents who said science and religion often conflict with each other were mostly likely to say the Earth is getting warmer because of human activity and least likely to say the Earth is getting warmer because of natural changes or the Earth is not getting warmer. This question does not indicate if science conflicts with the respondents personal religious beliefs, only if the respondent believes science and religion conflict with each other.

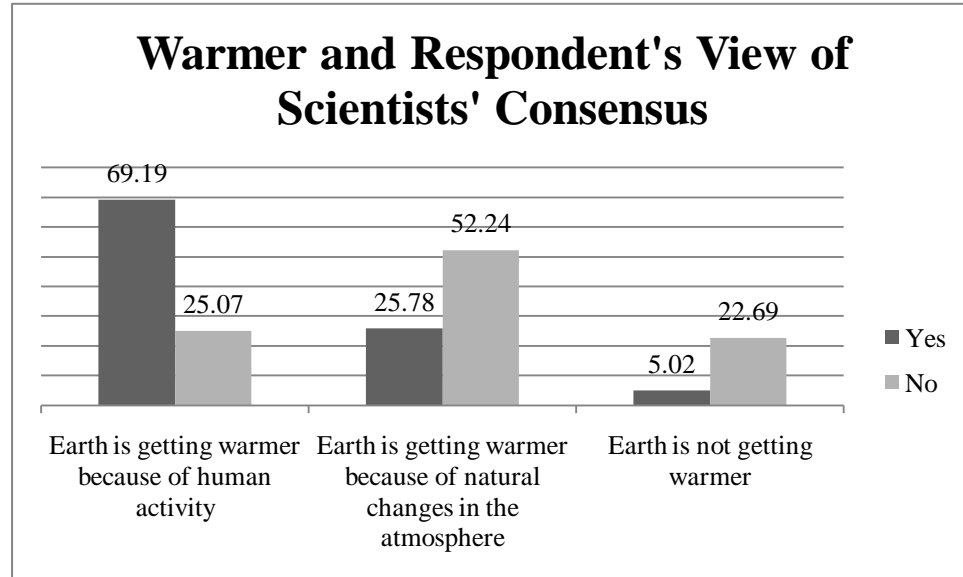
Figure 43: The Importance of Global Warming and Religious Compatibility



The figure above shows how respondents who believe science and religion are compatible rank the importance of global warming compared to respondents who believe science and religion conflict. The relationship is significant at the 0.001 level.

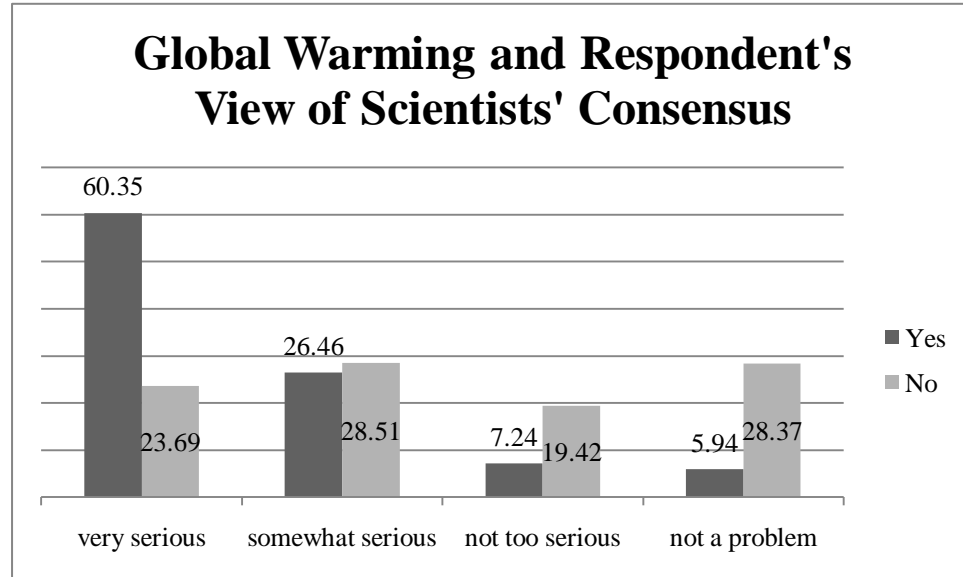
Respondents who say religion conflicts with science are most likely to say global warming is a “very serious” or “somewhat serious” problem and least likely to say global warming is not a serious problem or “not a problem” at all. Respondents who said science and religion are compatible are most likely to believe global warming is not a serious problem or “not a problem” at all and least likely to believe global warming is a “very serious” or “somewhat serious” problem.

Figure 44: Global Warming and Scientific Consensus



The above figure shows whether respondents believe scientists agree on the causes of global warming (yes) or believe scientists disagree on the causes of global warming (no) based on how they perceive the cause of global warming. The figure clearly shows those who do not believe scientists agree on the causes of global warming are also less likely to believe global warming is caused from human activity and most likely to believe the Earth is getting warmer because of natural changes or the Earth is not getting warmer. Respondents who believe there is a consensus among scientists are most likely to believe the Earth is getting warmer because of human activity. The relationship is significant at the 0.001 level.

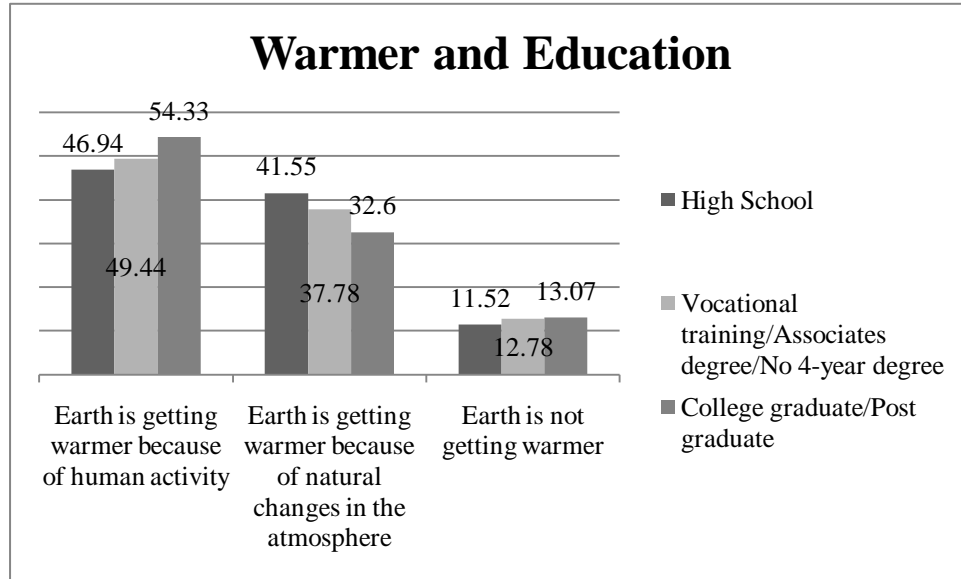
Figure 45: The Importance of Global Warming and Scientific Consensus



The above figure shows whether respondents believe scientists agree on the causes of global warming (yes) or believe scientists disagree on the causes of global warming (no) based on how important they rank global warming. Respondents who believe scientists do not agree are less likely to think global warming is a “very serious” problem and most likely to believe global warming is “not too serious” or “not a problem.” Respondents who believe scientists agree on the cause of global warming are most likely to believe global warming is a “very serious” problem and least likely to believe global warming is “not too serious” or “not a problem.” The relationship is significant at the 0.001 level.

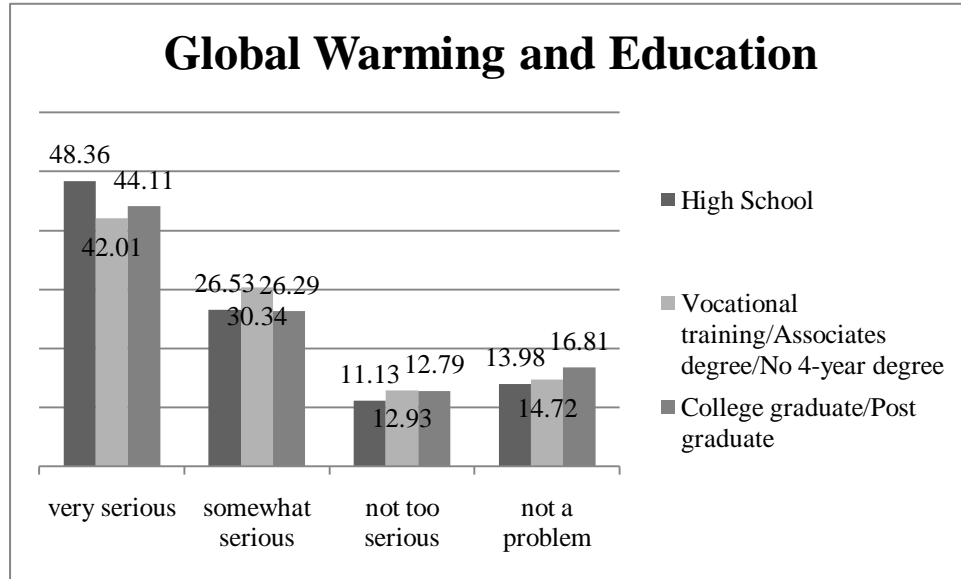


Figure 46: Global Warming Across Education



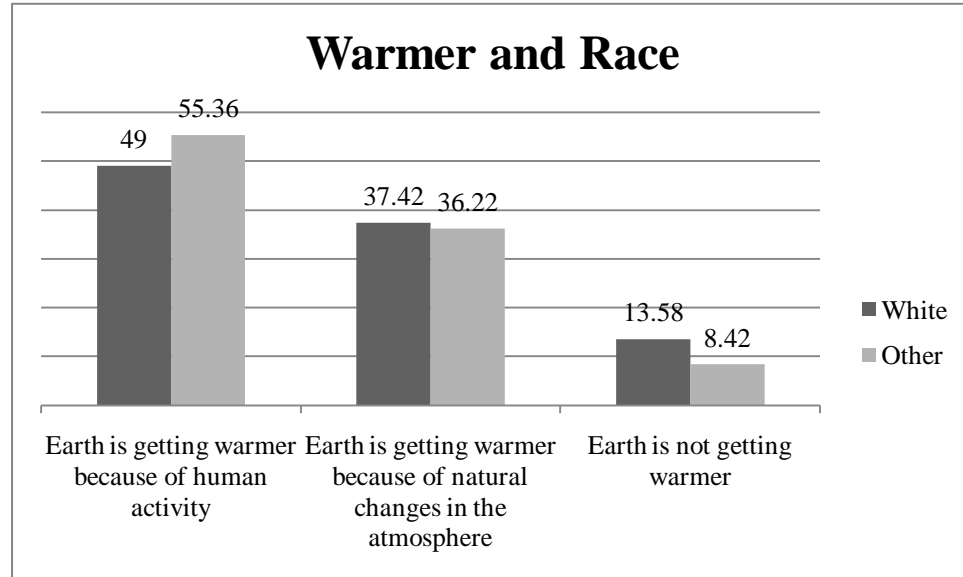
The above figure shows the relationship between education and the respondent's view of global warming. The higher the education level the more likely a respondent believes the Earth is getting warmer because of human activity or that the Earth is not getting warmer. The lower the education level the more likely a respondent will believe the Earth is getting warmer because of natural changes in the atmosphere. The significance level for this variable is 0.018, so it is statistically significant at the 0.05 level.

Figure 47: The Importance of Global Warming Across Education



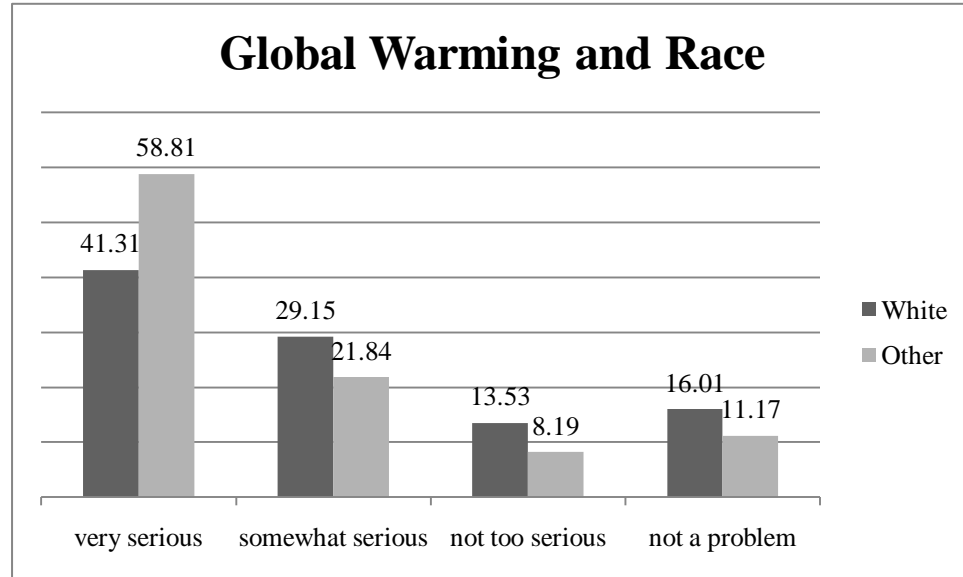
The figure above shows the relationship between education level and the importance of global warming. This model was not statistically significant at the 0.05 level. The significance level is 0.219. Although education is significant when asking a respondent's view of global warming, it is not significant when a respondent ranks the importance of global warming. Respondents are not affected by education when determining the importance of global warming.

Figure 48: Global Warming Across Race



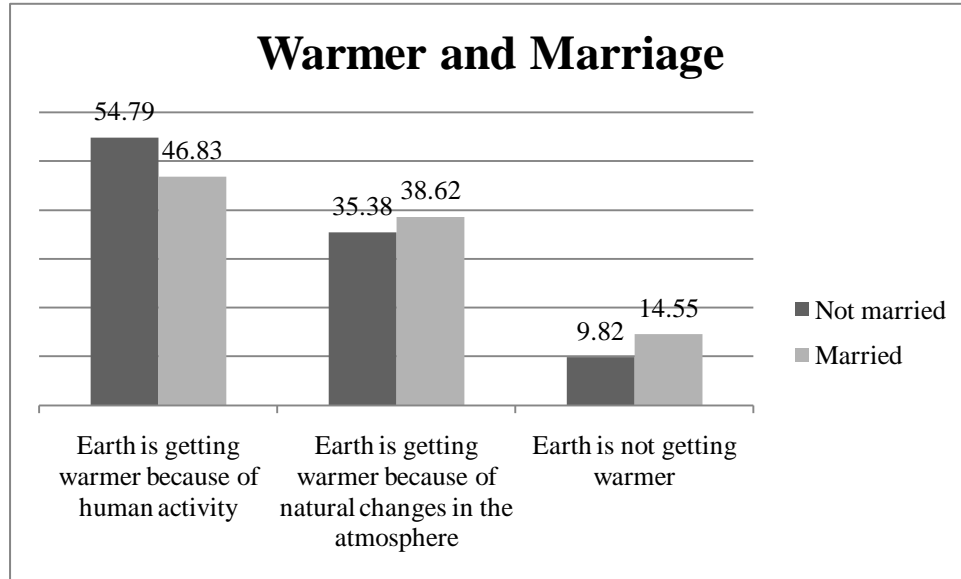
The above figure shows the relationship between the respondent's race and their view of global warming. White respondents are slightly more likely to believe the Earth is getting warmer because of natural changes in the atmosphere, more likely to believe the Earth is not getting warmer and less likely to believe the Earth is getting warmer because of human activity than others are. The significance level is 0.010, which is statistically significant at the 0.01 level.

Figure 49: The Importance of Global Warming Across Race



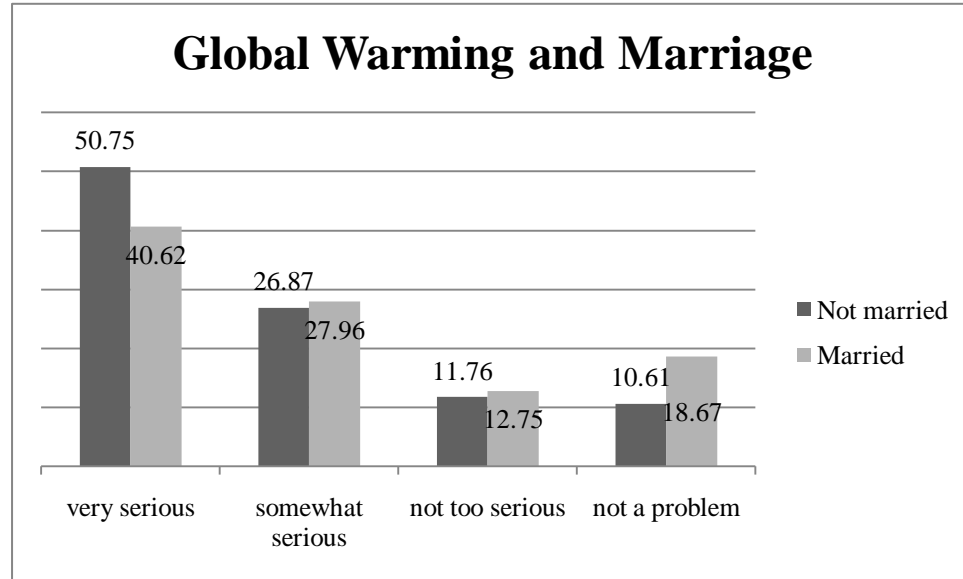
The above figure represents the relationship between race and the importance of global warming. Whites are the least likely to rate global warming as a “very serious” problem and more likely to rate global warming as “somewhat serious,” “not too serious” or “not a problem.” The relationship is significant at the 0.001 level.

Figure 50: Global Warming and Marital Status



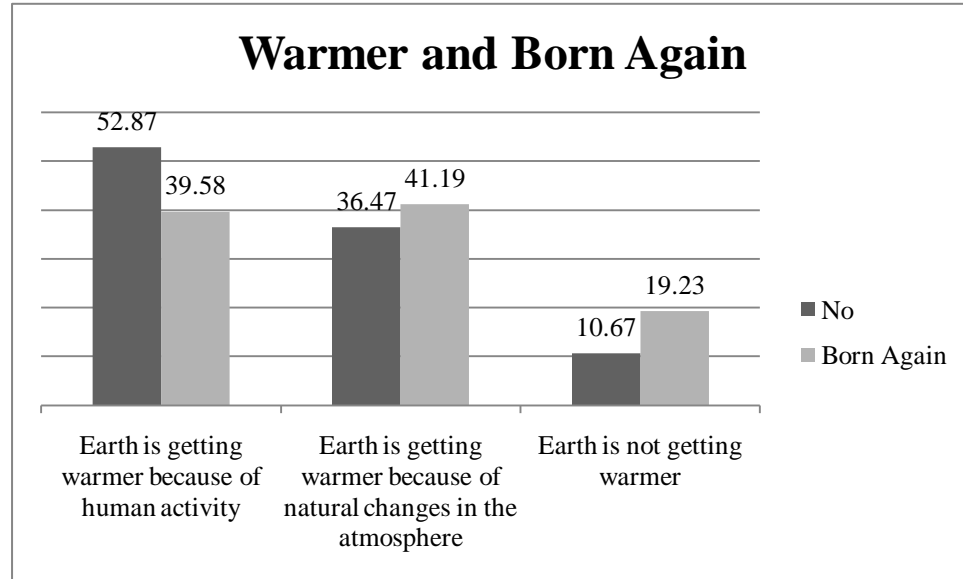
The above figure represents the respondent's view of global warming based on their marital status. Unmarried respondents are more likely to believe the Earth is getting warmer because of human activity and less likely to believe the Earth is getting warmer because of natural changes in the atmosphere or the Earth is not getting warmer than married respondents are. The relationship is significant at the 0.001 level.

Figure 51: The Importance of Global Warming and Marital Status



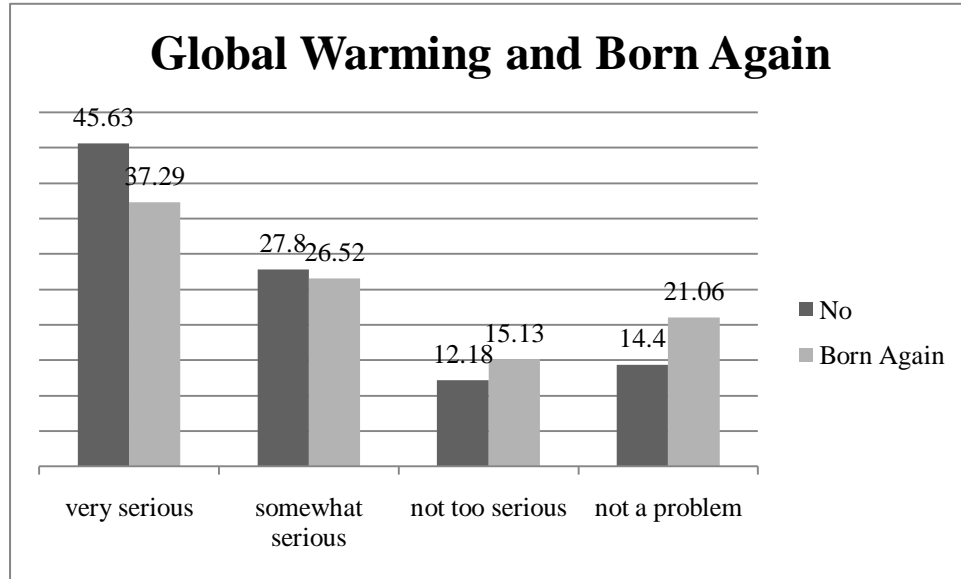
The figure above represents how important the respondents indicated global warming to be based on their marital status at the time of the survey. Unmarried respondents are most likely to say global warming is a “very serious” problem, but less likely to rank global warming as “somewhat serious”, “not too serious” or “not a problem.” Married respondents are most likely to rank global warming as “not a problem”, “not too serious” or “somewhat serious.” Married respondents are less likely to rank global warming as a “very serious” problem. The relationship is significant at the 0.001 level.

Figure 52: Global Warming and Born Again Christians



The figure above represents the respondents view of global warming based on rather or not they consider themselves a born again Christian. Those who identify themselves as born again are more likely to believe the Earth is getting warmer because of natural changes in the atmosphere or that the Earth is not getting warmer at all than Christians who do not consider themselves born again. Christians who do not consider themselves born again are most likely to believe the Earth is getting warmer because of human activity. The relationship is significant at the 0.001 level.

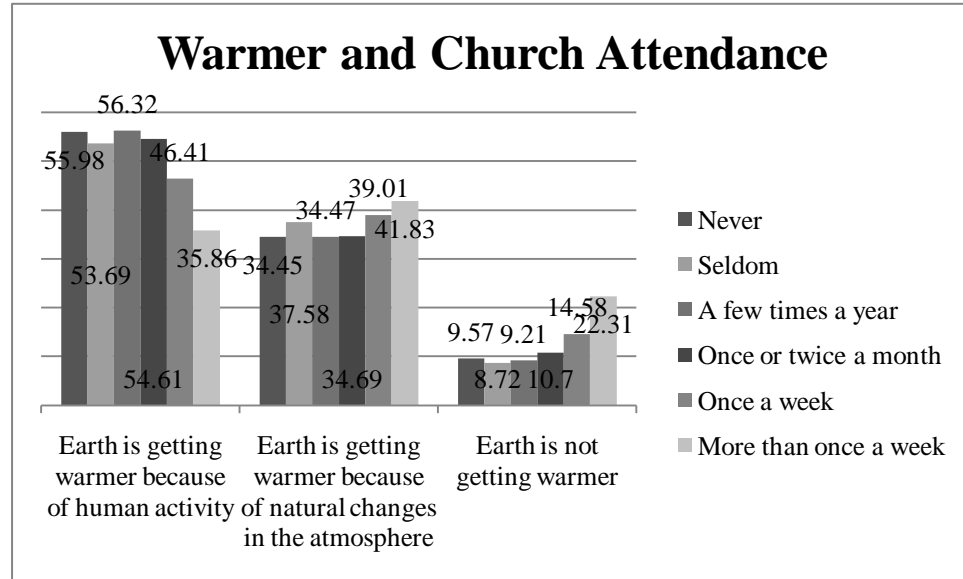
Figure 53: The Importance of Global Warming and Born Again Christians



The figure above represents how important the respondents believe global warming is based on their self-identification of being born again Christians. The figure shows those who indicate they are born again Christians are less likely to view global warming as a “very serious” problem or a “somewhat serious” problem than other self identified Christians. Born again Christians are also more likely than other Christians to believe global warming is “not too serious” or “not a problem.” The relationship is significant at the 0.001 level.

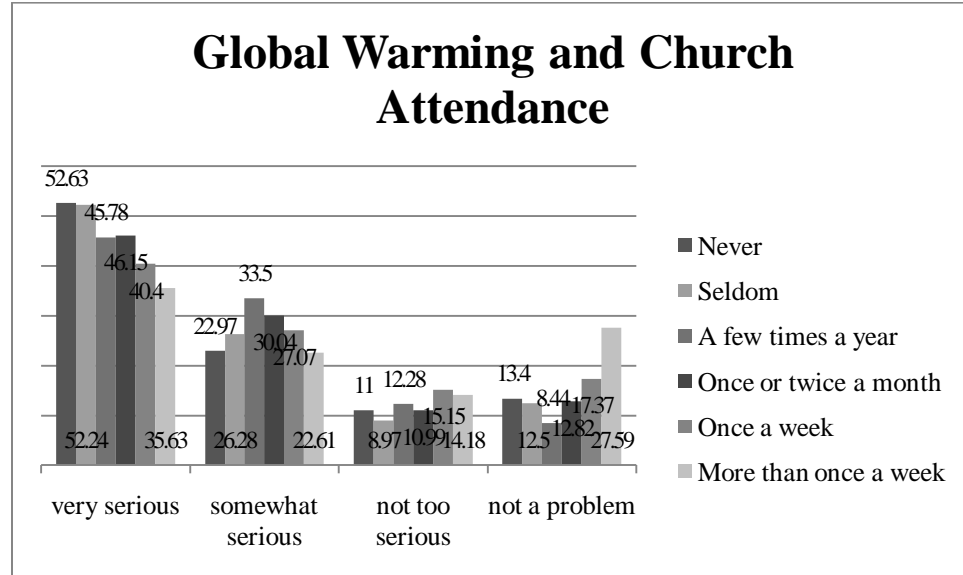


Figure 54: Global Warming and Church Attendance



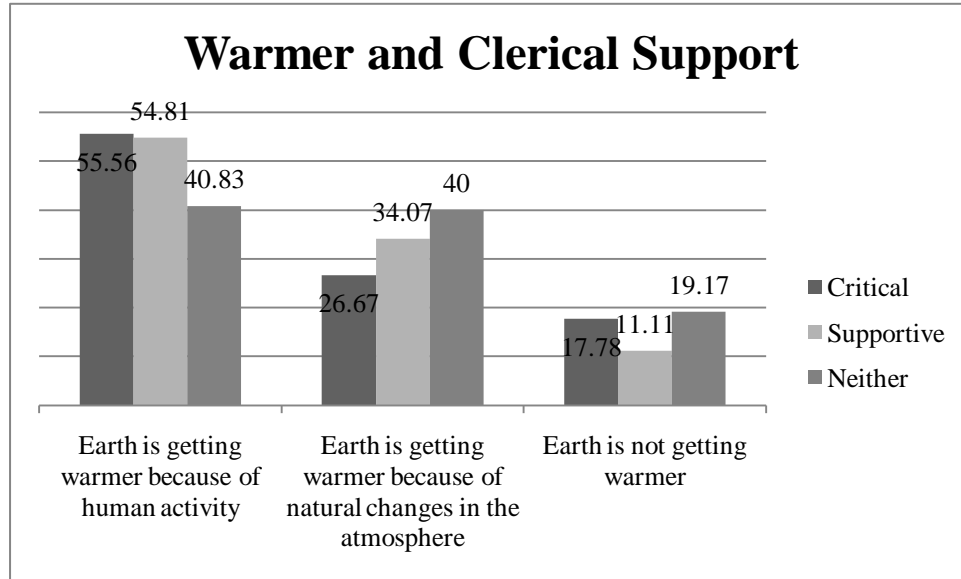
The above figure indicates the respondent's view of global warming based on their church attendance. The figure shows those who attend church more than once a week are more likely than others to believe the Earth is getting warmer because of natural changes or that the Earth is not getting warmer and less likely to believe the Earth is getting warmer because of changes in the atmosphere. The relationship is significant at the 0.001 level.

Figure 55: The Importance of Global Warming and Church Attendance



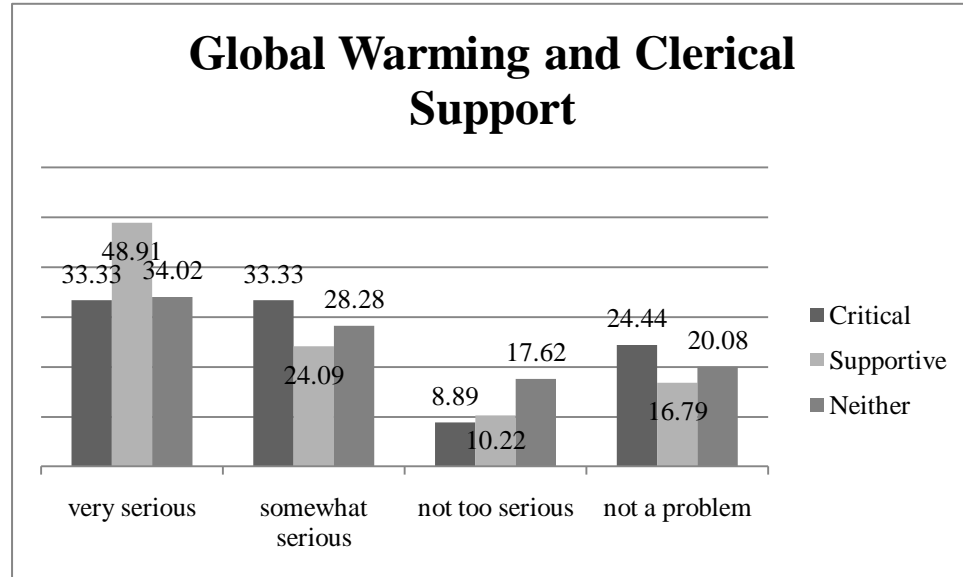
The figure above represents how important the respondents believe global warming is based on their church attendance. The figure shows those who attend church more than once a week are less likely to indicate global warming is a “very serious” or “somewhat serious” issue and more likely to indicate it is “not a problem” or “not too serious”. Respondents who attend church seldom or never are most likely to believe global warming is a “very serious” problem. The relationship is significant at the 0.001 level.

Figure 56: Global Warming and Clerical Support



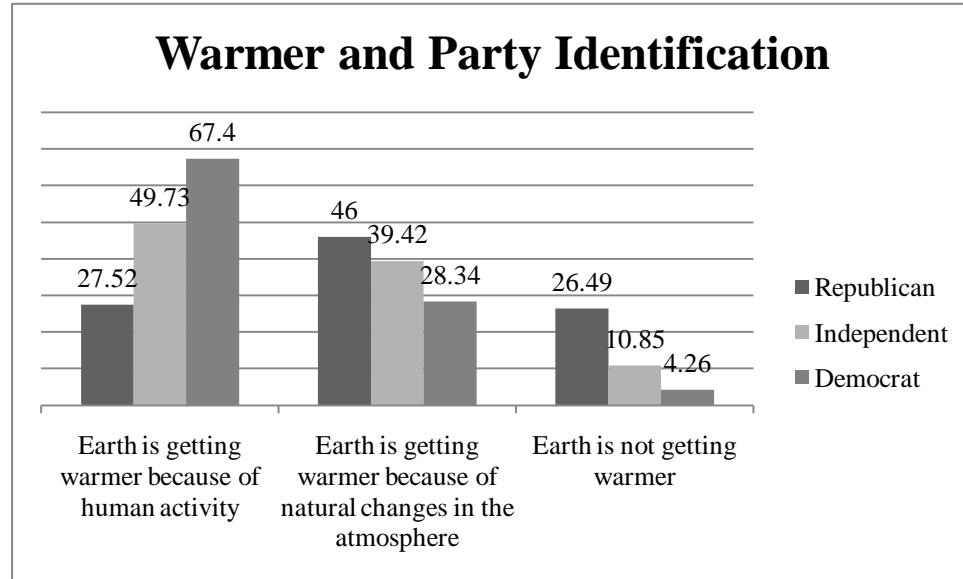
The figure above indicates the respondent's view of global warming based on if their clergy is critical, supportive, or neither of science. Respondents whose clergy is critical of science are more likely to say the Earth is getting warmer because of human activity and least likely to believe the Earth is getting warmer because of natural changes. Respondents who said their clergy is neither critical or supportive are least likely to believe the Earth is getting warmer because of human activity and most likely to believe the Earth is getting warmer because of natural changes in the atmosphere or the Earth is not getting warmer. The significance level is 0.039, statistically significant at the 0.05 level.

Figure 57: The Importance of Global Warming and Clerical Support



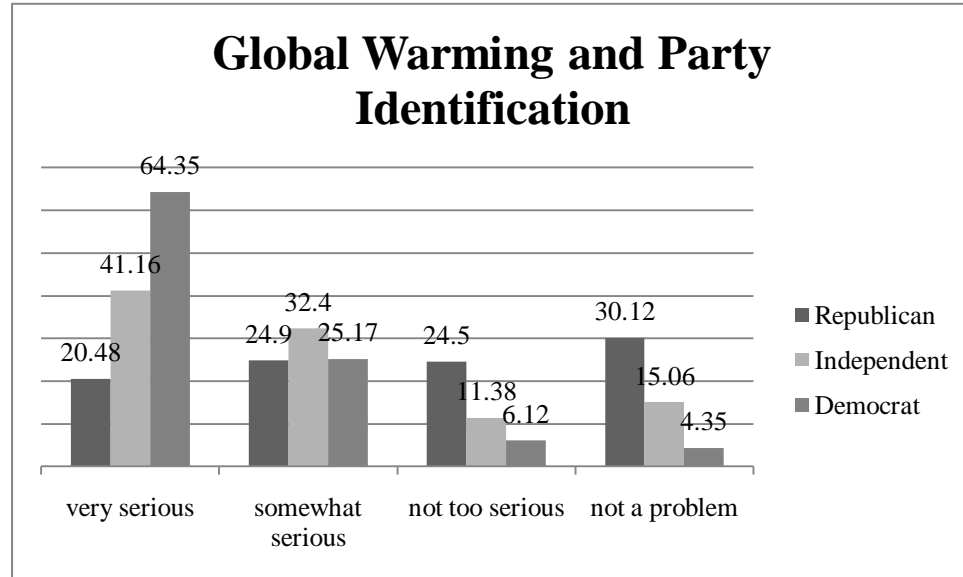
The figure above indicates how the respondents rank the importance of global warming based on how their clergy speaks of science. The significance level of this model is 0.060, not statistically significant at the 0.05 level. Clerical support or critiques do not influence the way respondents view the seriousness of global warming.

Figure 58: Global Warming and Party Identification



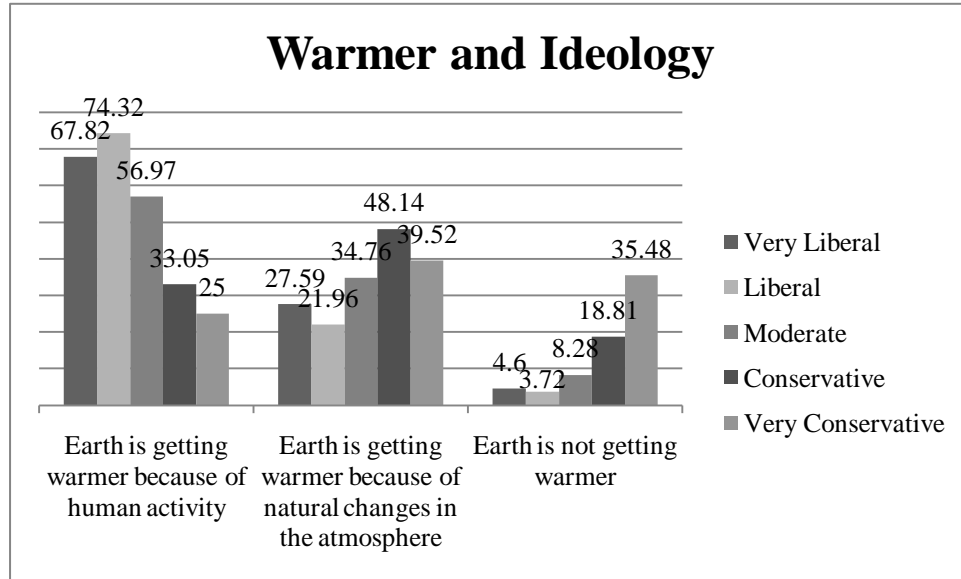
The above figure represents the respondents view on global warming based on their partisan identification. The figure shows a clear distinction between Republicans and Democrats. Republicans are less likely to believe the Earth is getting warmer because of human activity and most likely to believe the Earth is getting warmer because of natural changes in the atmosphere or the Earth is not getting warmer. Democrats are most likely to believe the Earth is getting warmer because of human activity and least likely to say the Earth is getting warmer because of natural changes in the atmosphere or the Earth is not getting warmer. Independents are in the middle across all categories. The relationship is significant at the 0.001 level.

Figure 59: The Importance of Global Warming and Party Identification



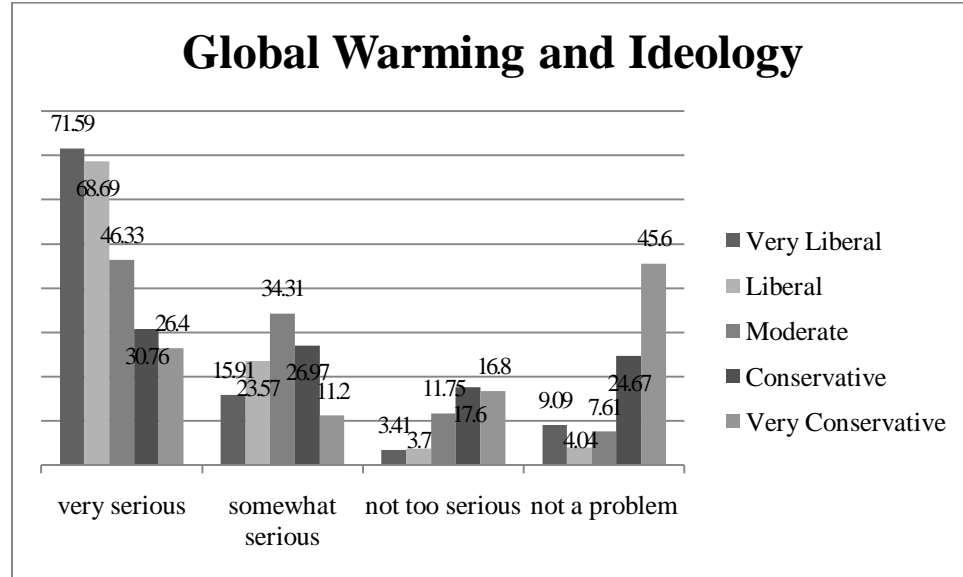
The above figure represents the importance of global warming based on party affiliation. Republicans are least likely to rank global warming as “very serious” and most likely to rank global warming as “not too serious” or “not a problem.” Democrats are least likely to rank global warming as “not too serious” or “not a problem” and most likely to say global warming is “very serious.” Independents are between republicans and democrats except in the “somewhat serious” category where they are more likely to fall than either party is. The relationship is significant at the 0.001 level.

Figure 60: Global Warming and Ideology



The above figure represents the respondent's view of global warming based on political ideology. Again, there are clear distinctions between those who consider themselves very liberal or liberal and those who consider themselves very conservative or conservative. Just as the warmer and party identification figure shows, the respondents who identify themselves as very liberal or liberal are more likely to believe the Earth is getting warmer because of human activity and least likely to say the Earth is getting warmer because of natural changes in the atmosphere or the Earth is not getting warmer. The respondents who identify themselves as very conservative or conservative are most likely to believe the Earth is not getting warmer or the Earth is getting warmer because of natural changes in the atmosphere and least likely to say the Earth is getting warmer because of human activity. The relationship is significant at the 0.001 level.

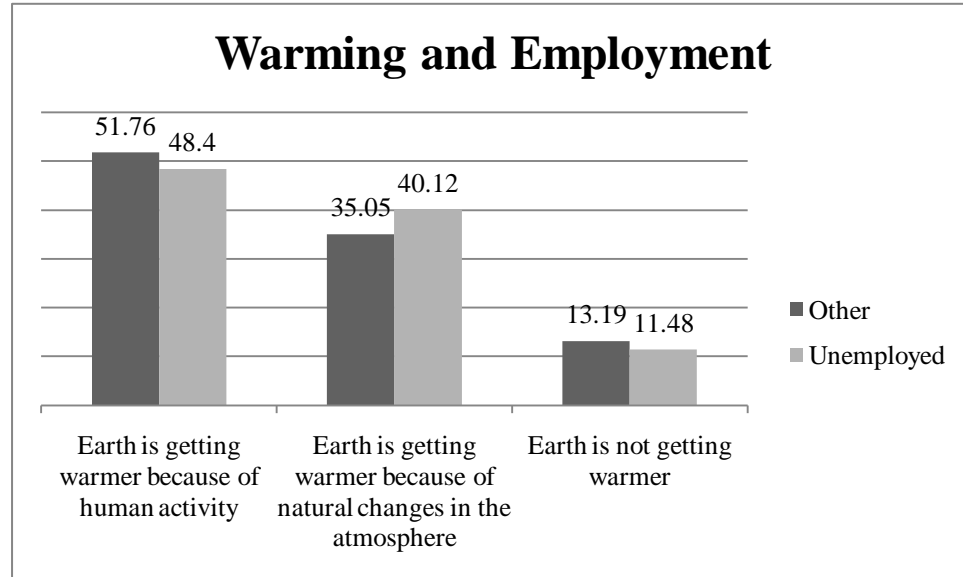
Figure 61: The Importance of Global Warming and Ideology



The above figure represents the seriousness the respondents ranked global warming based on their political ideology. Respondents with a more liberal ideology were most likely to say they believed global warming is a “very serious” problem and least likely to believe global warming is “not too serious” or “not a problem.” Those with a more conservative ideology were most likely to say global warming is “not too serious” or “not a problem.” Moderates lead liberals and conservatives believing that global warming is “somewhat serious.” The relationship is significant at the 0.001 level.

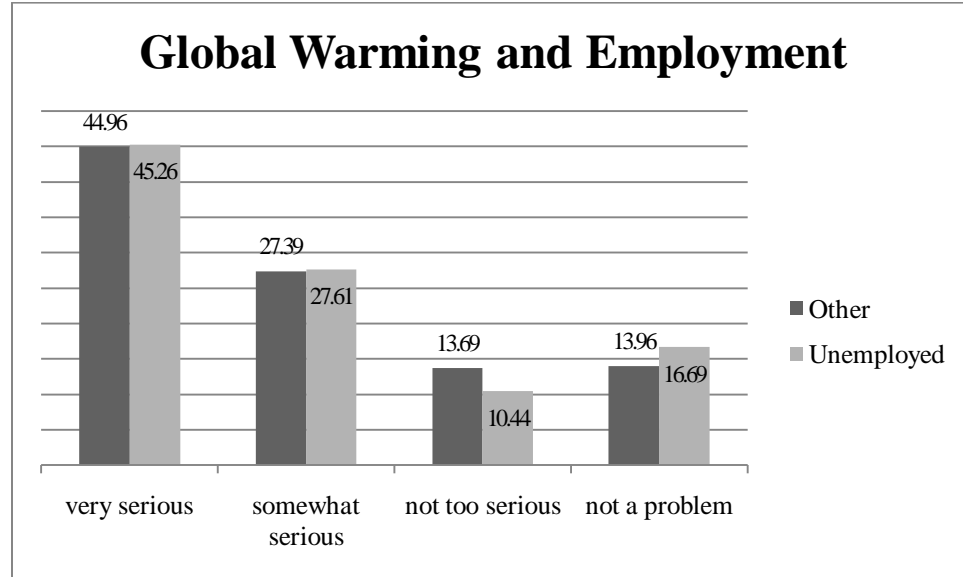


Figure 62: Global Warming and Employment



The above figure indicates the view of global warming based on if the respondent is employed or not. This relationship is not statistically significant, but could be significant in a larger model. The significance level for this model is 0.068. A pattern is present because unemployed respondents are less likely to believe the Earth is getting warmer because of human activity and more likely to believe the Earth is getting warmer because of changes in the atmosphere.

Figure 63: The Importance of Global Warming and Employment



The figure above represents how serious each respondent ranked global warming based on employment. The significance level for this model is 0.090, which is not statistically significant at the 0.05 level. However, employment status may still be important in a larger model.

Variables dealing with scientific knowledge were significant when respondents were asked to rank the importance of global warming; however, scientific knowledge was not important when respondents were asked about their view on global warming. These variables will be left out of the multivariate model.

The most consistently significant independent variables were religion. The more religious a person is, the less likely they will agree that global warming is a serious issue caused by human activity. South was not statistically significant, but since religion is an important factor in the South, it may become more important in a multi-variant analysis.

## **CHAPTER 7: ANTECEDENTS OF ENVIRONMENTAL CONCERN: THE IMPORTANCE OF REGION AND RELIGION**

A generalized ordered logit model was used for the multivariate analysis. A logit model shows the log of the odds in a multivariate equation. A normal regression analysis has the disadvantage of weighting the outcome based on everything included in the model. So, in a normal regression if you have a variable that is not beneficial to your model it can throw the entire model off, causing variables that should be significant to be insignificant and vice versa. With a multivariate regression model, each independent variable is regressed with each part of the dependant variable while holding all other independent variables at a constant (Williams, 2006). Changes in each variable are not changed or impacted by changes in the rest of the equation when using a multivariate model such as, logit or probit (Williams, 2006). Each variable in a logit model is *estimated* holding all other variables in the equation constant. Logit is preferred over probit for models with nominal dependent variables because it is easier to calculate. However, there is no probit equivalent of a generalized ordered logit model. Generalized ordered logit is different from other logit models because it is less restrictive, which prevents it from violating assumptions often made by an ordered logit model or a multinomial logit model (Williams, 2006). Ordered logit assumes there are parallel lines in the model, it does not allow the variables to move outside of these parameters (Williams, 2006). This works well for ordinal variables because there is no need to go outside the parameters. Ordered logit is used for ordinal dependant variables, which would not work here. The dependent variables here are not equally ranked. Multinomial logit is often used for non-ordinal variables, but has a few problems as well. With

multinomial logit there is often a problem caused by the fact it does not assume parallel lines in the model. Since it does not assume parallel lines, a multinomial logit will give several output parameters (Williams, 2006). Because of the increased number of outputs, some variables may be interpreted as insignificant. With any model as the outputs increase, the significance level goes down, but this can have much greater effects with a multinomial logit model because there are so many outputs being tested. Multinomial logit assumes the independence of irrelevant alternatives (Williams, 2006). This means that if a choice is added or eliminated it would not have any effect on the respondent's choice, they would still select the same response. Consider the first dependant variable, warmer, if a category were added stating global warming is fictional and made to scare people into purchasing higher-priced items, some people may choose the new statement over simply the Earth is not getting warmer. A generalized ordered logit relaxes the assumptions for models that would violate the parallel lines assumption, but maintains the parallel lines assumption for all other variables (Williams, 2006). Generalized ordered logit does not force multiple outputs, which keeps it from effecting significance levels where it is not necessary and allows easier interpretation (Williams, 2006).

The model below shows the results from a generalized ordered logit model for the dependent variable warmer. Recall the warmer variable asks respondents which of three statements best represent their view of the Earth's temperature. Options were coded with one being those who believe the Earth is getting warmer because of human activities. In the first category of the dependant variable model, the output contrasts those who believe the Earth is getting warmer because of human activity with all other options. The first category is labeled "warming caused by human activity." This category of the dependant

variable compares respondents who said the Earth is getting warmer because of human activity with those who said it is getting warmer, but not because of human changes and those who said the Earth is not getting warmer. The coefficient for the first category of the dependant variable is -4.6542 and it is highly significant. The second category of the dependant variable, contrasts the first two options, the Earth is getting warmer because of human activity, and the Earth is getting warmer, with the final option that the Earth is not getting warmer. This category is labeled “global warming is occurring.” The coefficient for the second category of the dependant variable is -7.0863 and is highly significant. The model has 1013 respondents, which indicates many of the 2001 respondents surveyed were excluded because they did not answer all of the questions included in the generalized ordered logit model. The entire logit model has a highly significant rate of 0.0000. The significant independent variables are sciwarming, bornagain, party1, ideology, and age. Education is significant at a 0.10 level, but not at the standard 0.05 level. Each of the significant independent variables is discussed individually below.

Table 1: Attitudes Toward Global Warming: A Generalized Ordered Logit Model

Generalized Ordered Logit Estimates                      Number of observations   =   1013

LR chi2 (15)   =   364.90

Probability > chi2   =   0.0000

Log likelihood = -822.59304                      Pseudo R2   =   0.1815

<b>Global Warming</b>	<b>Coefficient</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval</b>	
<b>Warming caused by Human Activity</b>						
southern	-.0549372	.1445316	-0.38	0.704	-.338214	.2283395
woman	-.1755516	.1359373	-1.29	0.197	-.4419838	.0908805
polworld	-.0142909	.0666029	-0.21	0.830	-.1448301	.1162483
relconflict	-.1998001	.1366022	-1.46	0.144	-.4675355	.0679354
sciwarming*	1.646369	.1419035	11.60	0.000	1.368244	1.924495

edu**	-.1703341	.0915621	-1.86	0.063	-.3497925	.0091244
race	-.0216246	.1931183	-0.11	0.911	-.4001295	.3568803
married	.0776874	.153585	0.51	0.613	-.2233336	.3787084
bornagain*	.4849142	.1460329	3.32	0.001	.198695	.7711334
atten	-.029089	.0508796	-0.57	0.568	-.1288113	.0706332
party1*	.6121225	.0906757	6.75	0.000	.4344014	.7898436
ideology*	.347742	.0824854	4.22	0.000	.1860736	.5094104
famincome	.016694	.037568	0.44	0.657	-.056938	.090326
unemploy	-.070343	.1514819	-0.46	0.642	-.3672421	.226556
age*	.0092506	.0045198	2.05	0.041	.0003918	.0181093
_cons*	-4.654266	.4972336	-9.36	0.000	-5.628826	-3.679706
<b>Global warming is occurring</b>						
southern	-.0549372	.1445316	-0.38	0.704	-.338214	.2283395
woman	-.1755516	.1359373	-1.29	0.197	-.4419838	.0908805
polworld	-.0142909	.0666029	-0.21	0.830	-.1448301	.1162483
relconflict	-.1998001	.1366022	-1.46	0.144	-.4675355	.0679354
sciwarming*	1.646369	.1419035	11.60	0.000	1.368244	1.924495
edu**	-.1703341	.0915621	-1.86	0.063	-.3497925	.0091244
race	-.0216246	.1931183	-0.11	0.911	-.4001295	.3568803
married	.0776874	.153585	0.51	0.613	-.2233336	.3787084
bornagain*	.4849142	.1460329	3.32	0.001	.198695	.7711334
atten	-.029089	.0508796	-0.57	0.568	-.1288113	.0706332
party1*	.6121225	.0906757	6.75	0.000	.4344014	.7898436
ideology*	.347742	.0824854	4.22	0.000	.1860736	.5094104
famincome	.016694	.037568	0.44	0.657	-.056938	.090326
unemploy	-.070343	.1514819	-0.46	0.642	-.3672421	.226556
age*	.0092506	.0045198	2.05	0.041	.0003918	.0181093
_cons*	-7.086389	.5330978	-13.29	0.000	-8.131241	-6.041536

\* indicates significance at a 0.05 level.

\*\* indicates significance at a 0.10 level.

**Sciwarming-** This variable asked respondents if they believe there is a consensus among scientist that the Earth is getting warmer because of human activity. The coefficients are the same in both categories of the dependant variables, which means this variable does not violate the parallel lines assumption. The coefficient for sciwarming is 1.6463. For every one unit change in the independent variable sciwarming the entire logit model is expected to increase by 1.6463, holding all other independent variables constant. Recall the respondents were coded as one if they believe scientists agree and a two if they think

scientists do not agree. It makes sense that if a respondent says they do not think the Earth is getting warmer because of human activity or getting warmer at all, they would be less likely to believe scientists agree.

**Bornagain-** The variable bornagain was only asked to Christians. The question asked respondents who has indicated they were Christians in a previous question if they consider themselves born again. Respondents who consider themselves born again were coded with a one and all others were given a zero. The coefficient for born again is 0.4849 and the significance level is 0.001. This means that for every one-unit increase in the variable bornagain the entire logit model will increase by 0.4849, holding all other independent variables constant. Again, this variable is the same across both categories of the dependant variables. Those who identify themselves as born again are more likely to believe the Earth's warming is not caused by human activity or the Earth is not getting warmer, if all other independent variables in this model are held at a constant.

**Party1-** Party1 shows the responses given for party identification. Democrats were given a one, Independents were given a two, and Republicans were given a three. The coefficient for party1 is 0.6121 and the significance is 0.000. As the research suggests, there is a clear distinction of global warming based on party identification. As party1 increases by one unit, there is a 0.6121 increase in the probability of being in a higher category, holding all other variables constant. So, as respondents move from Democrat to Republican their responses to the dependant variable also move from the Earth is getting warmer because of human activity to the Earth is not getting warmer.

**Ideology-** Ideology is very similar to party1, but not the same because some people who identify as liberal or conservative do not identify with the Democrat or Republican Party.

Ideology is coded from very liberal (one) to very conservative (five). Again, a positive trend is significant at 0.000. The coefficient is slightly different at 0.3477, likely because there are five possible choices for ideology and only three for party1. For every one unit increase in ideology there is a 0.3477 increase in the probability of being in a higher category, holding all other variables constant. The more conservative a respondent is the more likely they will not believe the Earth is getting warmer because of human activity.

**Age-** Age ranges from 18 to 99 and corresponds with each respondent's actual age. For this reason, the coefficient is low at 0.0092. The significance level is 0.041. Again, the coefficient and the significance level are the same across both categories of the dependant variables. For every one unit increase in age there is an expected 0.0092 increase in the probability of being in a higher category, holding all other variables constant. This positive coefficient indicates that the older a respondent is the less likely they are to believe the Earth is getting warmer because of human activity.

**Edu-** Education is not statistically significant at the 0.05 level, but it is significant at 0.063. Education is coded with less education being a one and the most amount of education being a three. The coefficient for education is -0.1703. The coefficient and significance are the same across both categories of the dependant variables. For a one unit increase in education there will be a 0.1703 decrease in the logit, holding everything else constant. The lower a respondent's education the less likely they are to think the Earth is getting warmer because of human activity.

Independent variables that are not statistically significant do not affect the generalized ordered logit the same as variables that are. However, the probability of  $\chi^2$  indicates the overall model is significant; meaning all variables contribute to the



overall fit. The significance is 0.0000, so all the variables contribute to the model, even though many of them are held at a constant coefficient.

Table 2: Attitudes Toward the Importance of Global Warming: A Generalized Ordered

Logit Model

Generalized Ordered Logit Estimates                      Number of observations   =   1028

LR chi2 (21)   =   467.47

Probability > chi2   =   0.0000

Log likelihood = -1090.6417                      Pseudo R2   =   0.1765

<b>Importance of Global Warming</b>	<b>Coefficient</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
<b>“very serious”</b>						
southern	-.0934847	.1357749	-0.69	0.491	-.3595985	.1726291
woman	-.1981952	.1267274	-1.56	0.118	-.4465764	.0501859
polworld	-.0481431	.0631759	-0.76	0.446	-.1719656	.0756793
relconflict	-.1420299	.1275067	-1.11	0.265	-.3919385	.1078786
sciwarming*	1.356361	.1323826	10.25	0.000	1.096896	1.615827
edu	-.0475177	.0855198	-0.56	0.578	-.2151334	.1200979
race*	-.4773434	.198541	-2.40	0.016	-.8664766	-.0882102
married	.1712632	.1433971	1.19	0.232	-.10979	.4523164
bornagain	.1966704	.136221	1.44	0.149	-.0703179	.4636586
atten	.0574959	.0479918	1.20	0.231	-.0365663	.1515581
party1*	.6682572	.0976527	6.84	0.000	.4768613	.859653
ideology*	.3390003	.0899279	3.77	0.000	.1627448	.5152557
famincome**	.0584753	.0352729	1.66	0.097	-.0106582	.1276088
unemploy	.0812453	.1418755	0.57	0.567	-.1968255	.3593162
age**	.0078233	.0041828	1.87	0.061	-.0003749	.0160215
_cons*	-4.525943	.4995057	-9.06	0.000	-5.504956	-3.546929
<b>“very serious” or “somewhat serious”</b>						
southern	-.0934847	.1357749	-0.69	0.491	-.3595985	.1726291
woman	-.1981952	.1267274	-1.56	0.118	-.4465764	.0501859
polworld	-.0481431	.0631759	-0.76	0.446	-.1719656	.0756793
relconflict	-.1420299	.1275067	-1.11	0.265	-.3919385	.1078786
sciwarming*	1.356361	.1323826	10.25	0.000	1.096896	1.615827
edu	-.0475177	.0855198	-0.56	0.578	-.2151334	.1200979
race	-.0287347	.2446493	-0.12	0.907	-.5082385	.4507692
married	.1712632	.1433971	1.19	0.232	-.10979	.4523164

bornagain	.1966704	.136221	1.44	0.149	-.0703179	.4636586
atten	.0574959	.0479918	1.20	0.231	-.0365663	.1515581
party1*	.9158746	.1095382	8.36	0.000	.7011837	1.130565
ideology*	.6199934	.1093782	5.67	0.000	.4056161	.8343708
famincome**	.0584753	.0352729	1.66	0.097	-.0106582	.1276088
unemploy	.0812453	.1418755	0.57	0.567	-.1968255	.3593162
age**	.0078233	.0041828	1.87	0.061	-.0003749	.0160215
_cons*	-7.677465	.5770982	-13.30	0.000	-8.808556	-6.546373
<b>“not a problem”</b>						
southern	-.0934847	.1357749	-0.69	0.491	-.3595985	.1726291
woman	-.1981952	.1267274	-1.56	0.118	-.4465764	.0501859
polworld	-.0481431	.0631759	-0.76	0.446	-.1719656	.0756793
relconflict	-.1420299	.1275067	-1.11	0.265	-.3919385	.1078786
sciwarming*	1.356361	.1323826	10.25	0.000	1.096896	1.615827
edu	-.0475177	.0855198	-0.56	0.578	-.2151334	.1200979
race	.278299	.296032	0.94	0.347	-.3019131	.8585112
married	.1712632	.1433971	1.19	0.232	-.10979	.4523164
bornagain	.1966704	.136221	1.44	0.149	-.0703179	.4636586
atten	.0574959	.0479918	1.20	0.231	-.0365663	.1515581
party1*	.7355675	.1357023	5.42	0.000	.4695959	1.001539
ideology*	.6361609	.1306591	4.87	0.000	.3800737	.8922482
famincome**	.0584753	.0352729	1.66	0.097	-.0106582	.1276088
unemploy	.0812453	.1418755	0.57	0.567	-.1968255	.3593162
age**	.0078233	.0041828	1.87	0.061	-.0003749	.0160215
_cons*	-8.481152	.6487049	-13.07	0.000	-9.752591	-7.209714

\* indicates significance at a 0.05 level.

\*\* indicates significance at a 0.10 level.

The second generalized ordered logit model shows the results for the dependant variable warming2. This question asked respondents to rank the importance of global warming on a scale from one to four. Respondents who believe global warming to be “very serious” are given a one, “somewhat serious” are given a two, “not too serious” are given a three, and “not a problem” is given a four. In the first category of the dependant variable, the option that global warming is “very serious” is contrasted with all other options. The category is named “very serious.” The second category of the dependant variable contrasts respondents who believe global warming is “very serious” or “somewhat serious” with respondents who said global warming is “not too serious” or

“not a problem.” The second category is named “very serious” or “somewhat serious.” The final category of the dependant variable contrasts the respondents who believe global warming is “very serious,” “somewhat serious,” and “not too serious” with the respondents who believe global warming is “not a problem.” The last category of the dependant variable is named “not a problem.” The probability of chi2 is 0.0000 suggesting the overall fit of the model is highly significant. There are 1028 total observations included. If a respondent did not answer each of the questions included in the model, they are excluded from the entire model, which accounts for the different number of observations. This model shows similar results to the first model with a few. The independent variables sciwarming, race, party1, and ideology are significant at the 0.05 level. Famincome and age are significant at a 0.10 level and will be discussed as significant. In the first generalized ordered logit model, race and famincome were not significant, but age, education, and bornagain were. The significant independent variables are discussed below.

**Sciwarming-** The independent variable sciwarming has a coefficient that remains the same across all categories of the dependant variables of 1.3563. The significance level for sciwarming is 0.000. For a one unit increase in sciwarming there is a 1.3563 increase in the probability of being in a higher category, holding all other variables at a constant. Respondents who believe that scientists agree global warming is caused by human activity are more likely to believe global warming is a problem.

**Race-** Race indicates whether the respondent indicated their race as white or something else. Respondents who indicated their race is white were given a zero and all others were

given a one. Race is interesting because is only significant in the first category of the dependant variable, it is not significant in the second or third category of the dependant variable. In the first category of the dependant variable the coefficient for race is -0.4773 and the significance is 0.016. For a one-unit increase in race, going from white to other, there is a decrease of 0.4773 in the logit model holding all other variables at a constant. This means that white respondents are more likely than other respondents to believe global warming is a serious problem over all other categories. Likewise, respondents that are not white are more likely to believe global warming is “somewhat serious,” “not too serious,” or “not a problem” than to believe global warming is a “very serious” problem.

**Party1-** A respondent’s party identification is coded from one to three with one=Democrats, two=Independents, and three=Republicans. The significance level is 0.000 across all categories of the dependant variables, but the coefficients change. The coefficient for the first category of the dependant variable is 0.6682; so for a one unit increase in party1 the logit model will increase 0.6682 holding all other variables constant when choosing between global warming being a serious problem over all other possible choices. The second category of the dependant variable, contrasts respondents who believe global warming is a serious problem or a “somewhat serious” problem with respondents who believe global warming is “not too serious” or “not a problem.” The coefficient for the second category of the dependant variable is the highest among all three categories of the dependant variables at 0.9158. Comparing global warming as a "serious problem" and a “somewhat serious” problem to respondents who believe global warming is either “not too serious” or “not a problem” among party changes the logit will increase by 0.9158 as party1 increases. Party identification has the greatest effect on the

logit model when comparing respondents who view global warming as a “very serious” problem or “somewhat serious” problem to those who believe global warming is “not too serious” or “not a problem.” The third category of the dependant variable contrasts respondents who believe global warming is a “very serious” problem, “somewhat serious” problem, or “not too serious” with those who believe global warming is “not a problem.” The coefficient for the third category of the dependant variable is higher than the first category of the dependant variable, but lower than the second category of the dependant variable, suggesting party identification has a greater effect here than in the first category of the dependant variable. As the party1 increases, the logit will increase 0.7355 among respondents who believe global warming is “not a problem” holding all other variables constant.

**Ideology-** Ideology has a similar affect to party1 as it did with the dependent variable warmer; however with the dependent variable warming the coefficients do change across category of the dependant variables. The significance of the change in ideology remains steady at 0.000 across all three categories of the dependant variables. Ideology ranges from one to five with one=very liberal, two=liberal, three=moderate, four=conservative, and five=very conservative. The first category of the dependant variable contrasts “very serious” with all other choices for the importance of global warming. For every one-unit increase of party ideology, the logit model increases by 0.3390 in the first category of the dependant variable, holding all other variables constant. The second category of the dependant variable contrasts the first two choices respondents had, “very serious” and “somewhat serious,” with the other two choices “not too serious” and “not a problem.” In the second category of the dependant variable for every one-unit change in party

ideology there is an increase of 0.6199 in the logit model holding all other variables constant. The third category of the dependant variable contrasts “very serious,” “somewhat serious,” and “not too serious” with “not a problem.” In the third category of the dependant variable for every one-unit change in party ideology there is a 0.6361 increase in the probability of being in a higher category holding everything else constant.

**Famincome-** Famincome represents the family income for the respondent. The categories range from one to nine with one being under \$10,000 annually and nine being over \$150, 000 annually. The coefficients and significance are the same for family income across all three categories of the dependant variable. Family income is not significant at the 0.05 level, but the significance level is 0.097, which is significant at a 0.10 level. For every one unit increase in family income there is a 0.0584 increase in the probability of being in a higher category, holding everything else constant.

**Age-** The variable age represents the actual age of each respondent. The significance and coefficients are the same across each category of the dependant variable. The significance level is again not significant at the 0.05 level. The significance level for age is 0.061. The coefficient is 0.0078. For every one unit increase in age there is a 0.0078 increase in the probability of being in a higher category (older) holding everything else constant.

Figure 64: Predicted Probability of Born Again, Ideology and Global Warming

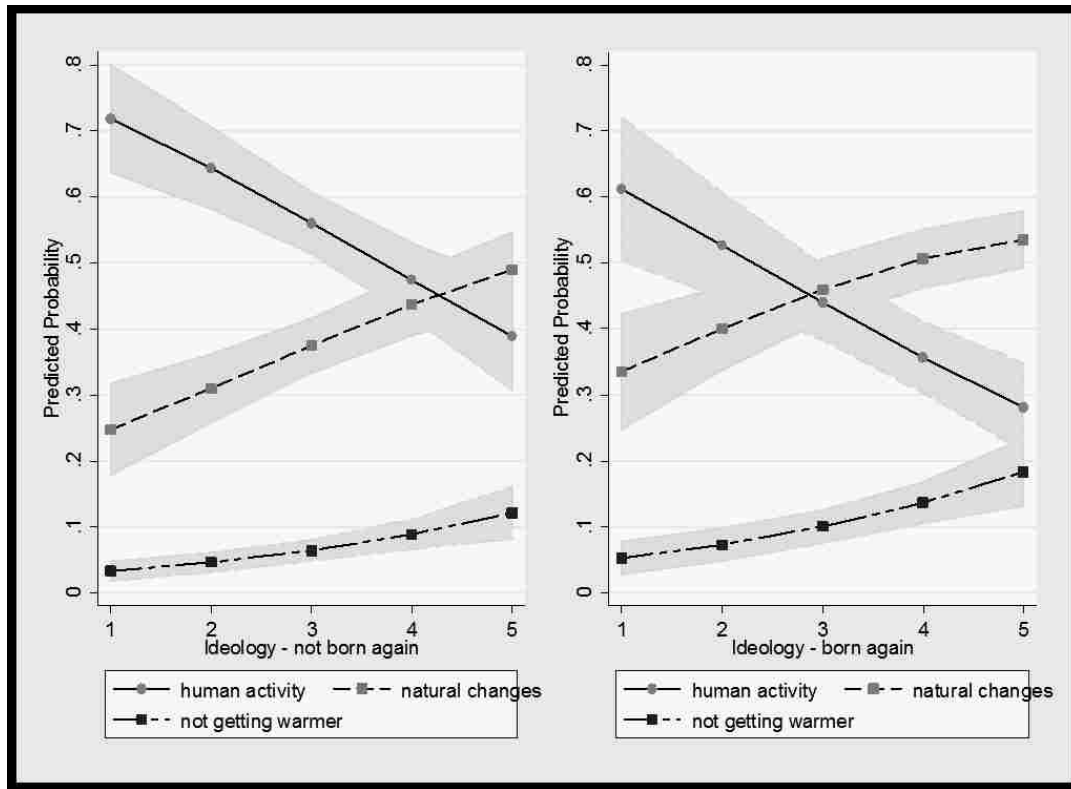


Figure 64 illustrates the generalized ordered logit model used in Table 1. Figure 64 uses the dependant variable that asks respondents their belief of global warming to determine the predicted probability a respondant will be born again or not and the respondent's political ideology. The dependant variable is shown in three different lines with confidence intervals. The legend at the bottom of each graph shows the descriptions for each of the three lines. Ideology is measured across the horizontal line going from one to five, with one being the most liberal and five being the most conservative. The vertical line shows the predicted probability. The graph on the left only depicts respondents who did not identify themselves as born again. The graph on the right only depicts respondents who identify themselves as born again Christians. The graphs hold all other variables in the generalized ordered logit model at a constant.

Looking first at the respondents in the category “not getting warmer,” the predicted probability of both born again and not born again is lower than the other categories. This can be explained by the lower number of respondents who said they did not believe the Earth was getting warmer. The probability increases as ideology moves from very liberal to very conservative. Respondents who are very conservative have a higher probability of believing the Earth is not getting warmer regardless of their born again status. Respondents who are born again have a slightly higher probability of being in the “not getting warmer” category than respondents who are not born again. Very conservative respondents who are born again are almost as likely to be in the “not getting warmer” category as they are to believe the Earth is getting warmer because of “human activity” when considering the confidence intervals. The confidence interval around “not getting warmer” is much smaller among liberals and slightly larger among very conservative respondents. This indicates the model is best at predicting responses for very liberal respondents, but this could be a reflection of the low number of respondents who fit into this group.

The category labeled “natural changes” illustrates the predicted probability of the respondents who said the Earth is getting warmer because of natural changes in the atmosphere, not because of human activity. For very conservative respondents who are not born again the predicted probability starts off low at between 0.2 and 0.3. It steadily increases to just under 0.5 for very conservative respondents who are not born again. Among respondents that are not born again the “natural changes” category intersects with the “human activity” category once respondents begin to identify themselves as conservative. There is a large discrepancy among the very liberal because as the graph



shows, most very liberal respondents agree that global warming is caused by human activity. Respondents who identify as born again start off in a higher predicted probability between 0.3 and 0.4 among the very liberal and increase to over 0.5 among the very conservative. Unlike the not born again graph the intersection between “human activity” and “natural changes” takes place just before respondents begin to identify as moderates. For respondents who believe the Earth is getting warmer due to natural changes in the atmosphere they are most likely to be conservative and born again Christians, just as those who believe the Earth is not getting warmer. However, there is a larger population of individuals who believe the Earth is getting warmer because of natural changes than there is who believe the Earth is not getting warmer. The confidence interval around the “natural changes” line shows how well the model predicts respondents in the category. Among respondents that are not born again the model is best at predicting moderates; with born again respondents the model is best at predicting conservative and very conservative in the “natural changes” category.

The last category is “human activity,” these respondents believe the Earth is getting warmer because of human activity. The first graph shows the respondent that are not born again. The predicted probability of a very liberal respondent who is not born again and believes the Earth is getting warmer because of human activity is just over 0.7 out of 1.0. With the confidence interval the predicted probability goes up to 0.8 if the respondent is very liberal. The confidence interval is closest among moderates, but widens out at both very liberal and very conservative, indicating the model is best at predicting moderates in the “human activity” category among respondents that are not born again. Respondents who are not born again and very conservative have a predicted

probability of just below 0.4. As respondents move along the ideology scale from very liberal to very conservative the probability they will believe the Earth is getting warmer because of human activity decreases. Among respondents that are born again the predicted probability is lower and the confidence interval is wider than with respondents who are not born again. Again the very liberal have the highest predicted probability of being in the “human activity” category. However, the confidence interval spans 0.1 in both directions, meaning the model is least effective at predicting respondents who are born again, very liberal and believe the Earth is getting warmer because of human activity. For the second graph the predicted probability begins at just above 0.6 for very liberal respondents and ends at below 0.3 among very conservative respondents.

At first glance figure 64 only confirms what the literature says about the relationship between ideology and environmental attitude. Upon closer inspection you can see the born again Christians are more likely to believe the Earth is getting warmer because of natural changes or the Earth is not getting warmer than respondents that are not born again. The predicted probability only increases with ideology. Among born again respondents the model is best at predicting conservative or very conservative respondents than very liberal respondents. Figure 64 confirms that religion is an important factor in the way people view global warming.

Figure 65: Predicted Probability of Born Again, Ideology and the Importance of Global Warming

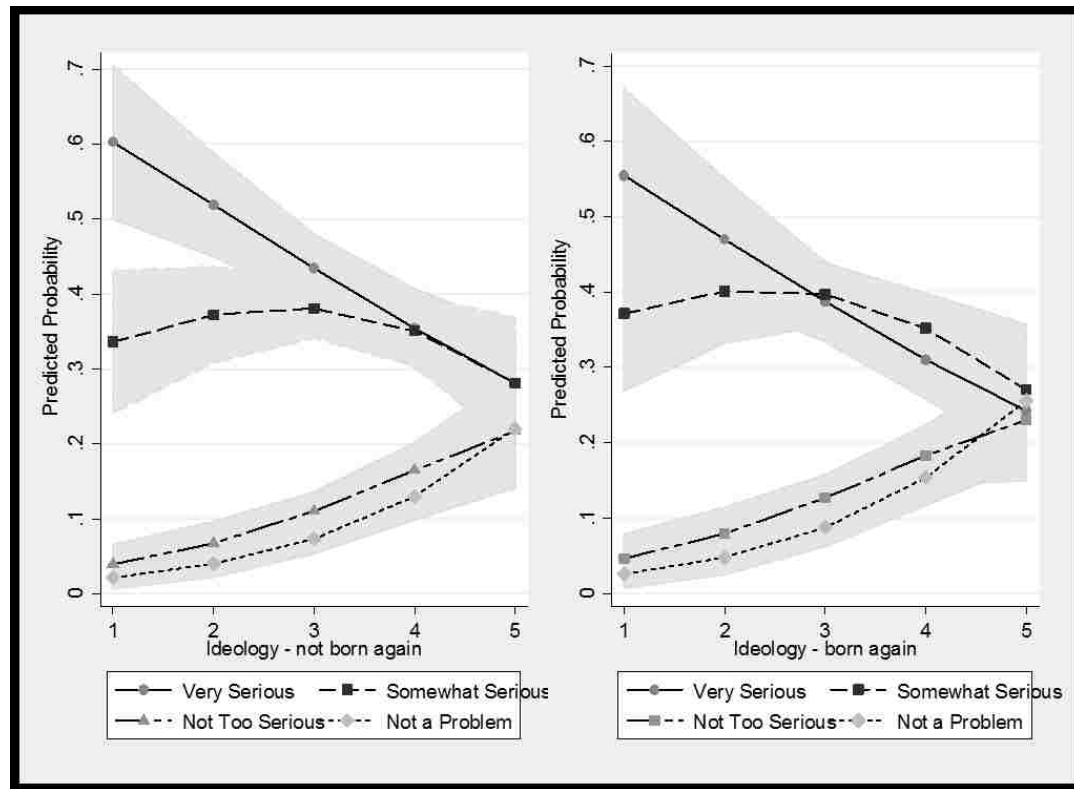


Figure 65 illustrates the generalized ordered logit model used in Table 2. Figure 65 uses the dependant variable that asks respondents to rate the importance of global warming. The graph then uses the answers given to determine the predicted probability a respondant will be born again or not and the respondent's ideology. The dependant variable is shown in four different lines with confidence intervals. The legend at the bottom of each graph shows the descriptions for each of the three lines. Ideology is measured across the horizontal line going from one to five, with one being the most liberal and five being the most conservative. The vertical line shows the predicted probability. The graph on the left only depicts respondents who did not identify themselves as born again Christians. The graph on the right only depicts respondents

who identify themselves as born again Christians. The graphs hold all other variables in the generalized ordered logit model at a constant.

The first line represents respondents who said global warming is a “very serious” problem. Among respondents who are not born again the predicted probability begins at 0.6 for the very liberal then steadily decreases. The predicted probability for “very serious” meets “somewhat serious” just under 0.3 once respondents begin to identify themselves as conservative and very conservative. Moderates have the smallest confidence interval, implying that there is more cohesion among moderates than there is among liberals or conservatives. The line for born again respondents who believe global warming is a serious problem begins with a slightly lower predicted probability of 0.55 then steadily decreases to approximately 0.25. The confidence interval for born again respondents who believe global warming is a “very serious” problem is closest among moderates, just as it is among non born again respondents. Respondents who believe global warming is a “very serious” problem are most likely very liberal or liberal, however moderates have the most group cohesion.

The second line describes respondents who believe global warming is a “somewhat serious” problem. The line on both the not born again and born again charts is curved indicating moderates are most likely to categorize global warming as a “somewhat serious” problem than liberals or conservatives. Comparing the two graphs side by side there are only a few differences. The main difference is how the “somewhat serious” line compares to the other lines in each graph. The not born again graph begins with a predicted probability of about 0.34 among very liberal respondents and ends with a

predicted probability of approximately 0.29. The born again line is very similar beginning at about 0.38 and ending at approximately 0.28. The “somewhat serious” lines on both graphs have their highest point among moderates with a predicted probability of roughly 0.39 among non born again respondents and 0.4 among born again respondents. The confidence interval on both graphs is narrowest among moderates indicating they not only have the highest predicted probability but also are best predicted by the model. Moderates are most likely to agree that global warming is a “somewhat serious” problem if they are born again. Moderates who are not born again are most likely to believe global warming is a “very serious” problem. Respondents who do not consider themselves born again are as likely to rank global warming as a “very serious” problem as they are to rank global warming as a “somewhat serious” problem if they are conservative or very conservative. Conservative and very conservative, born again respondents have the highest predicted probability for rating global warming as a “somewhat serious” problem.

The third line represents respondents who said global warming is “not too serious” of a problem. The trend among both born again and not born again respondents begins at approximately 0.05 and slowly increases to about 0.22 for not born again and roughly 0.23 for born again. For both born again Christians and Christians that did not consider themselves born again, the confidence interval is smaller among liberals and widens among conservatives. This indicates there is less variation among liberals than conservatives, but fewer of them who believe global warming is “not too serious”. As the ideological spectrum increases to very conservative the confidence interval widens. The widening of the confidence interval reveals there is less predictability among very

conservative Christians, both born again and not. The rise in the predicted probability shows the more conservative a person is, born again or not, the more likely they will agree with the statement that global warming is “not too serious” of a problem.

The fourth line represents respondents who did not believe global warming is a problem. The fourth line begins very low at approximately 0.02 for both born again and not born again. Again the same trend is present as with respondents who said global warming is “not too serious” of a problem. The line for both born again and not born again curves up slightly with the confidence interval widening as ideology increases. For respondents who said global warming is “not a problem” there is a higher increase between conservative and very conservative among born again Christians. Very conservative born again Christians are more likely to say global warming is “not a problem” than to say it is a “very serious” problem or “not too serious” of a problem. For Christians who are not born again the line ends at the same point as “not too serious,” at about 0.22. For born again Christians the line ends with a higher predicted probability of roughly 0.25.

Born again was not significant in the multivariate regression for environmental concern. However, the graphs in figure 65 show there is some explainable variation between born again and not born again. The two graphs look similar, but when looking closer you can see there is a difference among conservatives. Respondents who are very conservative or conservative and born again are more likely to believe global warming is “somewhat serious” or “not a problem.” This is a reflection of the conservative political agenda in the United States. While some conservatives do not believe global warming is

a problem at all, others still do not place it high on their list of importance and say it is only “somewhat serious”.

## **CHAPTER 8: CONCLUSION**

Extensive research has been conducted to explain why the South is different from their Northern counterparts. There have been many explanations from education to sanctions placed on the South following the civil war to political ideology (Black & Black, 1987). Some research has focused on marketing and other research attempts to explain why some people are adamantly for environmental changes and other vehemently oppose them. To date some research in psychology and political science has tried to explain environmental attitudes toward environmental policies. However, there has been no research conducted to explore the possibility that the opposition toward global warming, in the United States, comes primarily from the South. The previous chapters have explained Southern exceptionalism, the environmental movement, and sought to bridge the gap between these two groups of literature. Although it has been argued that the Southern United States has been losing some of its distinctive qualities since the Civil War, I will suggest it has been gaining others. One of the qualities gained in the South is religion that is now the backbone of the South. In the conclusion, I will review the previous findings of this paper and previous literature.

Gender is an important variable to include in any multivariate regression. In the multivariate regression, gender was not significant, but it was significant to the overall model. Gender is an important control variable, even when it is not independently significant. Gender is however, significant in the cross tabulations. Unlike previous research, the cross-tabulations found women have higher environmental concern and are more likely to believe global warming is caused by human activity. Meaning women are



more likely to believe the Earth is getting warmer because of human activity and less likely to believe the Earth is not getting warmer than men are. Women also believe global warming is a more serious problem than men do. This is in direct contrast to previous findings that men are more concerned with environmental issues (Kellstedt, Zahran, & Vedlitz, 2008). However, previous research on rural and urban environmental attitudes determined gender was not a significant predictor for environmental concern (Jones & Dunlap, 1992). In the multivariate regression models, the results were similar and gender is not significant. When it comes to predicting environmental attitude or environmental concern, gender is a significant predictor when it is the only variable to consider, and not controlled for in a multivariate model.

Age is also a solid predictor for several categories of attitude. Since each generation has its own set of norms and style, it seems natural that grouping age or generations together would allow an accurate prediction of attitude on any level. As the literature on environmental attitude suggested, the younger a person is the more concerned they are with global warming (Xiao & Dunlap, 2007). The cross tabulations for both environmental attitude and environmental concern support previous literature suggesting older people are less concerned with the environment than younger people (Klineberg, McKeever, & Rothenbach, 1998) (Jones & Dunlap, 1992) (Xiao & Dunlap, 2007). The multivariate regression also shows age is a significant variable in the model when all variables are taken into consideration. Considering the environmental movement has been underway for over forty years now it is not surprising younger people have a better understanding and concern for the environment. Older generations did not grow up immersed in the environmental movement, so their environmental

attitude is influenced by the generational gap. Older generations are less concerned with the global warming and less likely to believe global warming is caused by human activities. Age does lose its significance, however, once it is controlled for in a multivariate model. Once all factors are considered, age is not as effective at predicting environmental concern or environmental support. Age is only slightly significant in the multivariate regression model for environmental concern. Age is not as significant when other variables such as political ideology and religion are considered.

Education is significant for environmental attitude, but not environmental concern. Previous research found people could be supportive of the environment regardless of education (Uyeki & Holland, 2000). This is supported by the cross tabulation shown in figure 47. Figure 47 is not significant because education is not a predictor of concern for the environment, which means education has no impact on a person's environmental concern. A person with an advanced college degree is just as likely as a high school graduate is to be supportive of the environment. Unlike environmental concern, environmental belief shows statistical significance. Figures 46 shows those with a high school education, or below, are most likely to believe the Earth is getting warmer because of natural changes in the atmosphere. Those with higher levels of education are more likely to say the Earth is getting warmer because of human activity. There is not as clear of a distinction in education when looking at respondents who said the Earth is not getting warmer. This seems to indicate that those who believe the Earth is not getting warmer do not believe so because of lack of education but for some other reason.

When a major event takes place in the South, it begins in the church (Bullock & Rozell, 1998). Previous research as shown religion is a key cultural component in the South (Black & Black, 1987; Bullock & Rozell, 1998). Although residence in the South is not significant throughout the findings of this paper, religion is. Figure 34 shows the South is slightly significant at predicting how respondents will answer a question about what global warming is. This is important in the South because one of the largest churches in the South only changed their church teaching on global warming in 2006 to say that global warming is real, but even in 2006 the Southern Baptist Church taught that global warming is not caused by human activities (Alliance, 2006).

Church attendance was important to the dependant variables alone, but not when used in the multivariate regression models. This just means that when all the variables in the multivariate regression model were considered, church attendance was not significant. When it comes to the attitude and importance a person places on global warming, church attendance is important, but it is not as important when other variables are considered. Earlier research found that religious commitment influences environmental concern (Guth & Green, 1995). This research only shows religious commitment has an effect on global warming beliefs and attitudes when it is considered alone, without any other variables. Once church attendance is placed in a multiple regression model with other variables, it loses its significance. If religious commitment influences environmental concern, then church attendance should have a greater effect on environmental attitude in the multivariate regression model. However, church attendance does have a significant effect on both the importance an individual places on the global warming or their belief

in global warming. The previous research measured religious commitment, which could be different from church attendance to some respondents.

This research found that born again Christians are both less concerned with global warming and less likely to believe that global warming is caused by humans. These findings support earlier research, which found evangelicals are less environmentally concerned than others (Guth & Green, 1995). The born again variable was highly significant in the multivariate regression model for predicting beliefs in global warming. The multivariate regression with the dependant variable for level of environmental concern did not find born again to be statistically significant. Therefore, taking all the variables used in the multivariate regression into account, born again is still highly significant for predicting attitudes toward global warming, but not toward the importance of global warming. Figure 64 and 65 illustrate the importance of being born again in a graph with another important variable, ideology. Figure 64 looks at born again Christians and Christians that are not born again with ideology for a respondent's belief in global warming. Ideology and born again were found to be strong predictors for personal beliefs in global warming. Ideology helps to explain the differences among born again and not born again Christians. The more conservative a born again Christian is, the more likely they are to believe the Earth is not getting warmer or the Earth is getting warmer because of natural changes in the atmosphere. Christians that are not born again are less likely to believe the Earth is getting warmer because of natural changes in the atmosphere or the Earth is not getting warmer to begin with, but that likelihood does increase as they move from liberal to conservative.

The cross tabulations for political ideology show there are strong divides between liberals and conservatives when it comes to global warming. People who consider themselves very conservative are more likely to believe the Earth is not getting warmer and that global warming is “not a problem.” Those who consider themselves very liberal are most likely to believe the Earth is getting warmer because of human activity and global warming is a major problem. Although previous research found political ideology to be an important predictor for environmental attitude, most of the research looked at environmental attitude from an economic or policy perspective (Dunlap, Xiao, & McCright, 2001; Klineberg, McKeever, & Rothenbach, 1998). I believe political ideology is more important to environmental attitude than has been previously explored. This research proves political ideology is a strong predictor for global warming beliefs and concern alone, and in a multivariate regression model. Political ideology had a significance level of 0.000 in both cross tabulations and both multivariate regressions. It also proved invaluable at predicting and explaining the variance in environmental attitude in figures 64 and 65.

Religion is and will continue to be a major part of life in the Southern United States. The dependant variables used here to measure environmental attitude prove religion is a major factor in predicting environmental attitude. Although many Southerners and religious respondents did not believe global warming was caused by human activity as experts in global warming do, the same respondents are able to show a high level of concern for the global warming. Few people still believe that global warming is a hoax. The question now is not whether global warming exists, but what are the causes and the implications. Religious leaders continue to teach global warming is a

naturally occurring event. If people do not believe global warming is caused by human activity it is difficult for them to believe any changes they make will affect it. The research shows that education and region are not predictors of environmental concern, which tells a great deal about environmental attitude. Americans show concern for the environment regardless region or education. Southerners show levels of concern for global warming as high as the rest of the United States. Since religion is a significant predictor of environmental attitude and religion is a vital part of the South it can be concluded that Southerners environmental attitudes are affected by religion. The research does not indicate that Southerners are less concerned with the environment, only that they are less likely to believe global warming is a man made occurrence.

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## **APPENDIX I: STATA LOGFILE**

```
//creating a logfile to store all commands for southern exceptionalism impact on environmental attitude//  
  
log using "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer  
Woehr\October 8 2010 logfile.smcl", replace  
  
set linesize 85  
  
  
/* adjusting the memory for large data sets and make sure the output flows continuously across  
the screen without asking each time a page fills up*/  
  
set memory 300m  
  
set more off  
  
use "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer  
Woehr\science09c.dta"  
  
  
//Southern states variable//  
  
generate southern=.  
  
replace southern=1 if state==1           //Alabama//  
replace southern=1 if state==5           //Arkansas//  
replace southern=1 if state==12          //florida//  
replace southern=1 if state==13          //Georgia//  
replace southern=1 if state==22          //Louisiana//  
replace southern=1 if state==28          //Mississippi//  
replace southern=1 if state==37          //north Carolina//  
replace southern=1 if state==45          //south Carolina//  
replace southern=1 if state==48          //texas//  
replace southern=1 if state==47          //Tennessee//  
replace southern=1 if state==51          //Virginia//
```

replace southern=0 if state==4	//Arizona//
replace southern=0 if state==6	//California//
replace southern=0 if state==8	//Colorado//
replace southern=0 if state==9	//Connecticut//
replace southern=0 if state==10	//Delaware//
replace southern=0 if state==11	//district of Columbia//
replace southern=0 if state==16	//Idaho//
replace southern=0 if state==17	//Illinois//
replace southern=0 if state==18	//Indiana//
replace southern=0 if state==19	//iowa//
replace southern=0 if state==20	//Kansas//
replace southern=0 if state==21	//Kentucky//
replace southern=0 if state==23	//maine//
replace southern=0 if state==24	//Maryland//
replace southern=0 if state==25	//Massachusetts//
replace southern=0 if state==26	//Michigan//
replace southern=0 if state==27	//Minnesota//
replace southern=0 if state==29	//Missouri//
replace southern=0 if state==30	//Montana//
replace southern=0 if state==31	//Nebraska//
replace southern=0 if state==32	//Nevada//
replace southern=0 if state==33	//new Hampshire//
replace southern=0 if state==34	//new jersey//
replace southern=0 if state==35	//new mexico//
replace southern=0 if state==36	//new York//
replace southern=0 if state==38	//north Dakota//
replace southern=0 if state==39	//ohio//
replace southern=0 if state==40	//Oklahoma//

```

replace southern=0 if state==41           //Oregon//
replace southern=0 if state==42           //Pennsylvania//
replace southern=0 if state==44           //rhode island//
replace southern=0 if state==46           //south Dakota//
replace southern=0 if state==49           //Utah//
replace southern=0 if state==50           //Vermont//
replace southern=0 if state==53           //Washington//
replace southern=0 if state==54           //west Virginia//
replace southern=0 if state==55           //Wisconsin//
replace southern=0 if state==56           //Wyoming//

```

```
//check new variable//
```

```
tab southern
```

```
generate age2=.
```

```
replace age2=1 if age>17 & age<31
```

```
replace age2=2 if age>30 & age<41
```

```
replace age2=3 if age>40 & age<51
```

```
replace age2=4 if age>50 & age<61
```

```
replace age2=5 if age>60
```

```
//changing sex variable to female=1, male=0; calling variable woman//
```

```
tab sex
```

```
generate woman=.
```

```
replace woman=1 if sex==2           //female//
```

```
replace woman=0 if sex==1           //male//
```

```
//check new variable//
```

```
tab woman
```

//generate sciworld for q7a. reversing order so below average=1.....best in the world-4 and drop don't

know/refuse//

tab q7a

generate sciworld=.

replace sciworld=1 if q7a==4 //below average//

replace sciworld=2 if q7a==3 //average//

replace sciworld=3 if q7a==2 //above average//

replace sciworld=4 if q7a==1 //best in the world//

tab sciworld

//generate polworld for q7g. reversing order so below average=1.....best in the world-4 and drop don't

know/refuse//

tab q7g

generate polworld=.

replace polworld=1 if q7g==4 //below average//

replace polworld=2 if q7g==3 //average//

replace polworld=3 if q7g==2 //above average//

replace polworld=4 if q7g==1 //best in the world//

tab polworld

//generate enjoysci for q17. reverse responses so 1=do not enjoy at all & 4=enjoy a lot. drop don't

know/refuse...//

tab q17

generate enjoysci=.

replace enjoysci=1 if q17==4 //not at all//

replace enjoysci=2 if q17==3 //not much//

replace enjoysci=3 if q17==2 //some//

```

replace enjoysci=4 if q17==1                //a lot//
tab enjoysci

//generate scitv for q18. if regularly watch sci channels/programs=1, if not=0, drop don't know/refuse//
tab q18
generate scitv=.
replace scitv=1 if q18==1                    //yes, regularly//
replace scitv=0 if q18==2                    //no, not regularly//
tab scitv

//generate scinet for q19. if regularly visit science web sites/blogs=1, if not=0, drop refuse/don't know//
tab q19
generate scinet=.
replace scinet=1 if q19==1                    //yes, regularly//
replace scinet=0 if q19==2                    //no, not regularly//
tab scinet

//generate scimag for q20. if regularly read science magazines=1, if not=0, drop refuse/don't know//
tab q20
generate scimag=.
replace scimag=1 if q20==1                    //yes, regularly//
replace scimag=0 if q20==2                    //no, not regularly//
tab scimag

//generate scigood for q21. if respondent said science has a positive effect on society=1, all other
responses=0//
tab q21
generate scigood=.

```



```

replace scigood=1 if q21==1           //mostly positive//
replace scigood=0 if q21==2           //mostly negative//
replace scigood=0 if q21==3           //both/neither//
replace scigood=0 if q21==9           //don't know/refuse//
tab scigood

//generate scieffect for q21. reverse responses so 1=negative & 2=positive. drop don't know/refuse...//
tab q21
generate scieffect=.
replace scieffect=2 if q21==1           //mostly positive//
replace scieffect=1 if q21==2           //mostly negative//
replace scieffect=3 if q21==3           //both/neither//
tab scieffect

//generate scieasy for q23. if respondent said science has made life easier=1, all other responses=0//
tab q23
generate scieasy=.
replace scieasy=1 if q23==1           //easier//
replace scieasy=0 if q23==2           //more difficult//
replace scieasy=0 if q23==3           //not had much of an effect//
replace scieasy=0 if q23==9           //don't know/refuse//
tab scieasy

//generate scienvi for q24c. drop refuse/don't know//\
tab q24c
generate scienvi=.
replace scienvi=q24c if q24c<9
tab scienvi

```

//create new variable for Q25, science and religion conflict. Leaving out don't know/refuse responses.

calling variable relconflict//

tab q25

generate relconflict=.

replace relconflict=1 if q25==1

replace relconflict=0 if q25==2

//check new variable//

tab relconflict

//create new variable for q26, own religious beliefs and conflict. leave out don't know/refuse. call new variable conflict.//

tab q26

generate conflict=.

replace conflict=1 if q26==1

replace conflict=0 if q26==2

//check new variable//

tab conflict

//generate new variable warmer, q44F1 & q45F2. leave out don't know/refuse. labeling 1, 2, or 3 in order of liberal to conservative responses.//

tab q44f1

tab q45f2

generate warmer=.

replace warmer=1 if q44f1==2

replace warmer=1 if q45f2==3

replace warmer=2 if q44f1==1

replace warmer=2 if q45f2==2

replace warmer=3 if q44f1==3

replace warmer=3 if q45f2==1

//check//

tab warmer

//generate warming2 for q46. removing don't know/refuse from data//

tab q46

generate warming2=.

replace warming2=q46 if q46<9

//check new variable//

tab warming2

//generate sciwarmer for q47. removing do//n't know/refuse from data

tab q47

generate sciwarming=.

replace sciwarming=q47 if q47<9

//check new variable//

tab sciwarming

//generate scientist for q54. removing don't know/refuse from data//

tab q54

generate scientist=.

replace scientist=q54 if q54<9

//check new variable//

tab scientist

//generate edu for educ. recoding al with high school or less=1, some college or technical school=2,

college graduate and post graduate=3...dropping all don't know/refuse//

```

tab educ

generate edu=.

replace edu=1 if educ==1 //no education or grade 1-8//

replace edu=1 if educ==2 //grades 9-11//

replace edu=1 if educ==3 //high school graduate//

replace edu=2 if educ==4 //technical, trade, or vocational after high school//

replace edu=2 if educ==5 //some college, associates degree, no 4-year degree//

replace edu=3 if educ==6 //college graduate//

replace edu=3 if educ==7 //post-graduate training//

//check new variable//

tab edu

//generate scidegree for scideg. leaving out data for those without a sci degree because only college
graduates were asked this question.//

tab scideg

generate scidegree=.

replace scidegree=0 if scideg==2

replace scidegree=1 if scideg==1

//check new variable//

tab scidegree

//generate race from racecmb. removing don't know/refuse//

tab racecmb

generate race=.

replace race=0 if racecmb==1

replace race=1 if racecmb==2

replace race=1 if racecmb==3

replace race=1 if racecmb==4

```

```
replace race=1 if racecmb==5
```

```
//check new variable//
```

```
tab race
```

```
//generate married dummy variable from marital. coding all variations of not married =0//
```

```
tab marital
```

```
generate married=.
```

```
replace married=1 if marital<2
```

```
replace married=0 if marital>2
```

```
replace married=0 if marital==2
```

```
//check new variable//
```

```
tab married
```

```
//generate child for parent and parent2. If respondent has children=1, no children living in the household or  
over 18=0*****Do I need to keep the don't knows in this??? If not I can delete the lines==9//
```

```
tab parent
```

```
tab parent2
```

```
generate child=.
```

```
replace child=1 if parent==1
```

```
replace child=1 if parent2==1
```

```
replace child=0 if parent==2
```

```
replace child=0 if parent==9
```

```
replace child=0 if parent2==2
```

```
replace child=0 if parent2==9
```

```
tab child
```

```
//generate bornagain from born. If yes=1, if no or don't know/refuse=0....I am leaving the don't
```

```
know/refuse in because I feel that anyone who claims to be born again would not refuse to answer.//
```

tab born

generate bornagain=.

replace bornagain=1 if born==1

replace bornagain=0 if born==2

replace bornagain=0 if born==9

tab bornagain

//generate atten for attend. drop don't know/refuse//

tab attend

generate atten=.

replace atten=1 if attend==6

replace atten=2 if attend==5

replace atten=3 if attend==4

replace atten=4 if attend==3

replace atten=5 if attend==2

replace atten=6 if attend==1

tab atten

//generate clergysci from q67. If clergy does speak of science=1, if no or don't know/refuse=0//

tab q67

generate clergysci=.

replace clergysci=1 if q67==1

replace clergysci=0 if q67==2

tab clergysci

//generate clergysci2 from q68. drop don't know/refuse//

tab q68

generate clergysci2=.

replace clergysci2=q68 if q68<9

tab clergysci2

//generate famincome from income. drop don't know/refuse...I will want to look at this both ways and see  
if maybe the don'tknows fall into a certain grouping.//

tab income

generate famincome=.

replace famincome=income if income<10

tab famincome

//generate party1 from party. drop don't know/refuse//

tab party

generate party1=.

replace party1=1 if party==2

replace party1=2 if party==3

replace party1=3 if party==1

tab party1

//generate ideology from ideo. reorganizing from very liberal to very conservative, drop don't  
know/refuse//

tab ideo

generate ideology=.

replace ideology=1 if ideo==5 //Very Liberal//

replace ideology=2 if ideo==4 //Liberal//

replace ideology=3 if ideo==3 //Moderate//

replace ideology=4 if ideo==2 //Conservative//

replace ideology=5 if ideo==1 //Very Conservative//

tab ideology

//generate unemploy from employ. creating dummy variable 1=unemployed, all others, including don't

know/refuse=0//

tab employ

generate unemploy=.

replace unemploy=1 if employ==3 //not employed//

replace unemploy=0 if employ==1 //full-time//

replace unemploy=0 if employ==2 //part-time//

replace unemploy=0 if employ==9 //don't know/refuse//

tab unemploy

//generate fullretire from retire. create dummy variable, if retired=1, if semi-retired/no/don't

know/refuse=0//

tab retire

generate fullretire=.

replace fullretire=1 if retire==1 //retired//

replace fullretire=0 if retire==2 //semi-retired//

replace fullretire=0 if retire==3 //not retired//

replace fullretire=0 if retire==9 //don't know/refused//

tab fullretire

//generate stu from student. dummy variable if a student part or full time=1, if not a student or refuse/don't

know=0//

tab student

generate stu=.

replace stu=1 if student==1 //full-time//

replace stu=1 if student==2 //part-time//

replace stu=0 if student==3 //not a student//



```

replace stu=0 if student==9                                //don't know/refused//

tab stu

/*Create a new variable to identify those not working, not in school, and not retired. NOTE: unemployed
should have its greatest effect when the person is truly unemployed meaning fullretire=0 and stu=0,
otherwise there may be no effect.*/

generate nemp=.

replace nemp=1 if employ==3      & retire==3 & student==3

tab nemp

//generate stu2 dummy variable from student. if full-time student=1, all others=0//

tab student

generate stu2=.

replace stu2=1 if student==1

replace stu2=0 if student==2

replace stu2=0 if student==3

replace stu2=0 if student==9

tab stu2

tab warmer southern, row col chi2 gamma lrchi2 taub V
tab warmer woman, row col chi2 gamma lrchi2 taub V
tab warmer sciworld, row col chi2 gamma lrchi2 taub V
tab warmer polworld, row col chi2 gamma lrchi2 taub V
tab warmer enjoysci, row col chi2 gamma lrchi2 taub V
tab warmer scitv, row col chi2 gamma lrchi2 taub V
tab warmer scinet, row col chi2 gamma lrchi2 taub V
tab warmer scimag, row col chi2 gamma lrchi2 taub V
tab warmer scigood, row col chi2 gamma lrchi2 taub V
tab warmer scieffect, row col chi2 gamma lrchi2 taub V

```

tab warmer scieasy, row col chi2 gamma lrchi2 taub V  
 tab warmer scienvi, row col chi2 gamma lrchi2 taub V  
 tab warmer relconflict, row col chi2 gamma lrchi2 taub V  
 tab warmer conflict, row col chi2 gamma lrchi2 taub V  
 tab warmer sciwarming, row col chi2 gamma lrchi2 taub V  
 tab warmer scientist, row col chi2 gamma lrchi2 taub V  
 tab warmer edu, row col chi2 gamma lrchi2 taub V  
 tab warmer scidegree, row col chi2 gamma lrchi2 taub V  
 tab warmer race, row col chi2 gamma lrchi2 taub V  
 tab warmer married, row col chi2 gamma lrchi2 taub V  
 tab warmer child, row col chi2 gamma lrchi2 taub V  
 tab warmer bornagain, row col chi2 gamma lrchi2 taub V  
 tab warmer atten, row col chi2 gamma lrchi2 taub V  
 tab warmer clergysci, row col chi2 gamma lrchi2 taub V  
 tab warmer clergysci2, row col chi2 gamma lrchi2 taub V  
 tab warmer famincome, row col chi2 gamma lrchi2 taub V  
 tab warmer party1, row col chi2 gamma lrchi2 taub V  
 tab warmer ideology, row col chi2 gamma lrchi2 taub V  
 tab warmer unemploy, row col chi2 gamma lrchi2 taub V  
 tab warmer fullretire, row col chi2 gamma lrchi2 taub V  
 tab warmer stu, row col chi2 gamma lrchi2 taub V  
 tab warmer nemp, row col chi2 gamma lrchi2 taub V  
 tab warmer stu2, row col chi2 gamma lrchi2 taub V  
 tab warming2 southern, row col chi2 gamma lrchi2 taub V  
 tab warming2 woman, row col chi2 gamma lrchi2 taub V  
 tab warming2 sciworld, row col chi2 gamma lrchi2 taub V  
 tab warming2 polworld, row col chi2 gamma lrchi2 taub V  
 tab warming2 enjoysci, row col chi2 gamma lrchi2 taub V

tab warming2 scitv, row col chi2 gamma lrchi2 taub V  
 tab warming2 scinet, row col chi2 gamma lrchi2 taub V  
 tab warming2 scimag, row col chi2 gamma lrchi2 taub V  
 tab warming2 scigood, row col chi2 gamma lrchi2 taub V  
 tab warming2 scieffect, row col chi2 gamma lrchi2 taub V  
 tab warming2 scieasy, row col chi2 gamma lrchi2 taub V  
 tab warming2 scienvi, row col chi2 gamma lrchi2 taub V  
 tab warming2 relconflict, row col chi2 gamma lrchi2 taub V  
 tab warming2 conflict, row col chi2 gamma lrchi2 taub V  
 tab warming2 sciwarming, row col chi2 gamma lrchi2 taub V  
 tab warming2 scientist, row col chi2 gamma lrchi2 taub V  
 tab warming2 edu, row col chi2 gamma lrchi2 taub V  
 tab warming2 scidegree, row col chi2 gamma lrchi2 taub V  
 tab warming2 race, row col chi2 gamma lrchi2 taub V  
 tab warming2 married, row col chi2 gamma lrchi2 taub V  
 tab warming2 child, row col chi2 gamma lrchi2 taub V  
 tab warming2 bornagain, row col chi2 gamma lrchi2 taub V  
 tab warming2 atten, row col chi2 gamma lrchi2 taub V  
 tab warming2 clergysci, row col chi2 gamma lrchi2 taub V  
 tab warming2 clergysci2, row col chi2 gamma lrchi2 taub V  
 tab warming2 famincome, row col chi2 gamma lrchi2 taub V  
 tab warming2 party1, row col chi2 gamma lrchi2 taub V  
 tab warming2 ideology, row col chi2 gamma lrchi2 taub V  
 tab warming2 unemploy, row col chi2 gamma lrchi2 taub V  
 tab warming2 fullretire, row col chi2 gamma lrchi2 taub V  
 tab warming2 stu, row col chi2 gamma lrchi2 taub V  
 tab warming2 nemp, row col chi2 gamma lrchi2 taub V  
 tab warming2 stu2, row col chi2 gamma lrchi2 taub V

```

tab warmer age2, row col chi2 gamma lrchi2 taub V
tab warming2 age2, row col chi2 gamma lrchi2 taub V
tab warmer famincome, row col chi2 gamma lrchi2 taub V
tab warming2 famincome, row col chi2 gamma lrchi2 taub V
sum scidegree race born attend party

//creating gologit model for each DV//
gologit2 warmer southern woman polworld relconflict sciwarming edu race married bornagain atten party1
ideology famincome unemploy age, autofit lrforce v1
prgen ideology, from(1) to(5) x(bornagain=0) rest(mean) gen(sborn) n(5) ci
label var sbornp1 "human activity"
label var sbornp2 "natural changes"
label var sbornp3 "not getting warmer"
label var sborns1 ""
label var sborns2 ""
label var sbornx "Ideology - not born again"

graph twoway (rarea sbornp1lb sbornp1ub sbornx, color(gs14)) ///
(rarea sbornp2lb sbornp2ub sbornx, color(gs14)) ///
(rarea sbornp3lb sbornp3ub sbornx, color(gs14)) ///
(connected sbornp1 sbornx, clcolor(black) clpat(solid)) ///
(connected sbornp2 sbornx, clcolor(black) clpat(solid)) ///
(connected sbornp3 sbornx, clcolor(black) clpat(solid)), ///
legend(on order(4 5 6)) ///
ylabel(0(.1)1.0) ///
yttitle("Predicted Probability") ///

```

```
graph save Graph "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer
Woehr\warmer ideology noborn.gph", replace
```

```
drop sborn*
```

```
gologit2 warmer southern woman polworld relconflict sciwarming edu race married bornagain atten party1
```

```
ideology famincome unemploy age, autofit lforce v1
```

```
prgen ideology, from(1) to(5) x(bornagain=1) rest(mean) gen(sborn) n(5) ci
```

```
label var sbornp1 "human activity"
```

```
label var sbornp2 "natural changes"
```

```
label var sbornp3 "not getting warmer"
```

```
label var sborns1 ""
```

```
label var sborns2 ""
```

```
label var sbornx "Ideology - born again"
```

```
graph twoway (rarea sbornp1lb sbornp1ub sbornx, color(gs14))          ///
(rarea sbornp2lb sbornp2ub sbornx, color(gs14))                      ///      (rarea sbornp3lb
sbornp3ub sbornx, color(gs14))                                         ///
(connected sbornp1 sbornx, clcolor(black) clpat(solid))              ///
(connected sbornp2 sbornx, clcolor(black) clpat(solid))              ///
(connected sbornp3 sbornx, clcolor(black) clpat(solid)),              ///
legend(on order(4 5 6))                                              ///
ylabel(0(.1)1.0)                                                    ///
ytile("Predicted Probability")                                       ///
```

```
graph save Graph "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer
Woehr\warmer ideology born.gph", replace
```

```
drop sborn*
```

```
graph combine "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer  
Woehr\warmer ideology noborn.gph" "C:\Documents and Settings\Todd Shields\My Documents\My Stata  
Files\Summer Woehr\warmer ideology born.gph"
```

```
graph save Graph "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer  
Woehr\warmer ideology combined.gph", replace
```

```
gologit2 warming2 southern woman polworld relconflict sciwarming edu race married bornagain atten  
party1 ideology famincome unemploy age, autofit lforce v1
```

```
prgen ideology, from(1) to(5) x(bornagain=1) rest(mean) gen(sborn) n(5) ci
```

```
label var sbornp1 "Very Serious"
```

```
label var sbornp2 "Somewhat Serious"
```

```
label var sbornp3 "Not Too Serious"
```

```
label var sbornp4 "Not a Problem"
```

```
label var sborns1 ""
```

```
label var sborns2 ""
```

```
label var sborns3 ""
```

```
label var sbornx "Ideology - born again"
```

```
graph twoway (rarea sbornp1lb sbornp1ub sbornx, color(gs14))      ///  
(rarea sbornp2lb sbornp2ub sbornx, color(gs14))                  ///  
(rarea sbornp3lb sbornp3ub sbornx, color(gs14))                  ///  
(rarea sbornp4lb sbornp4ub sbornx, color(gs14))                  ///  
(connected sbornp1 sbornx, clcolor(black) clpat(solid))          ///
```

```

    (connected sbornp2 sbornx, clcolor(black) clpat(solid))    ///
    (connected sbornp3 sbornx, clcolor(black) clpat(solid))    ///
    (connected sbornp4 sbornx, clcolor(black) clpat(solid)),    ///
    legend (on order (5 6 7 8))                                ///
    ylabel (0(.1)1.0)                                          ///
    ytitle("Predicted Probability")                             ///

graph save Graph "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer
Woehr\warming2 ideology born.gph", replace

drop sborn*

gologit2 warming2 southern woman polworld relconflict sciwarming edu race married bornagain atten
party1 ideology famincome unemploy age, autofit lforce v1

prgen ideology, from(1) to(5) x(bornagain=0) rest(mean) gen(sborn) n(5) ci
label var sbornp1 "Very Serious"
label var sbornp2 "Somewhat Serious"
label var sbornp3 "Not Too Serious"
label var sbornp4 "Not a Problem"
label var sborns1 ""
label var sborns2 ""
label var sborns3 ""
label var sbornx "Ideology - not born again"

graph twoway (rarea sbornp1lb sbornp1ub sbornx, color(gs14))    ///
(rarea sbornp2lb sbornp2ub sbornx, color(gs14))                ///
(rarea sbornp3lb sbornp3ub sbornx, color(gs14))                ///

```

```

(rarea sbornp4lb sbornp4ub sbornx, color(gs14))          ///

(connection sbornp1 sbornx, clcolor(black) clpat(solid))  ///

(connection sbornp2 sbornx, clcolor(black) clpat(solid))  ///

(connection sbornp3 sbornx, clcolor(black) clpat(solid))  ///

(connection sbornp4 sbornx, clcolor(black) clpat(solid)),  ///

legend (on order (5 6 7 8))                               ///

ylabel (0(.1)1.0)                                          ///

ytitle("Predicted Probability")                            ///


graph save Graph "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer
Woehr\warming2 ideology noborn.gph", replace


graph combine "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer
Woehr\warming2 ideology noborn.gph" "C:\Documents and Settings\Todd Shields\My Documents\My
Stata Files\Summer Woehr\warming2 ideology born.gph"


graph save Graph "C:\Documents and Settings\Todd Shields\My Documents\My Stata Files\Summer
Woehr\warming2 ideology combined.gph", replace

```